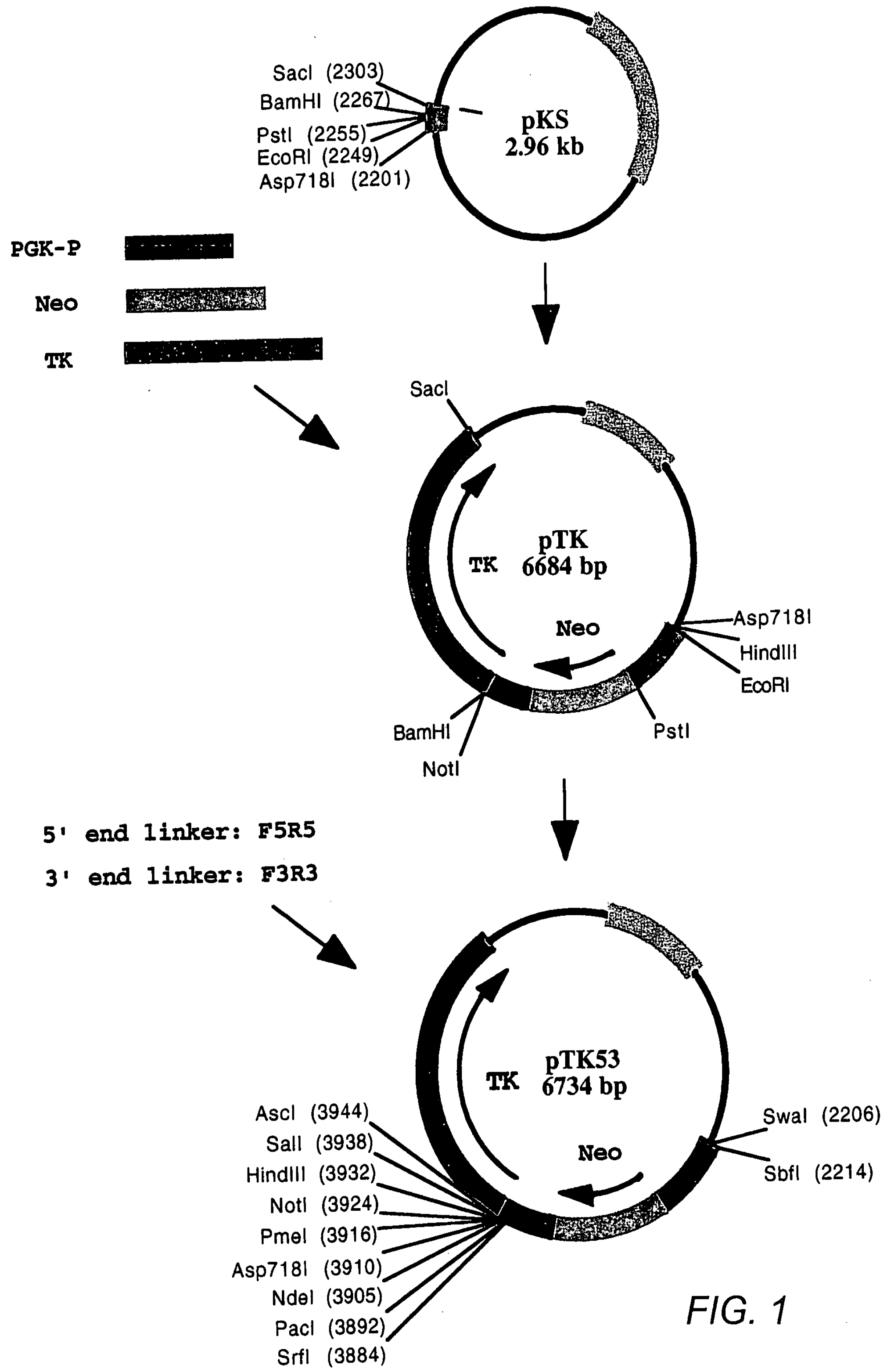

SacI (2303)
BamHI (2267)
PstI (2255)
EcoRI (2249)
Asp718I (2201)
pKS
2.96 kb
PGK-P
Neo
TK
SacI
pTK
6684 bp
TK
Neo
Asp718I
HindIII
EcoRI
BamHI
NotI
PstI
5' end linker: F5R5
3' end linker: F3R3
pTK53
6734 bp
TK
Neo
AscI (3944)
SalI (3938)
HindIII (3932)
NotI (3924)
PmeI (3916)
Asp718I (3910)
NdeI (3905)
PacI (3892)
SrfI (3884)
SwaI (2206)
SbfI (2214)

FIG. 1

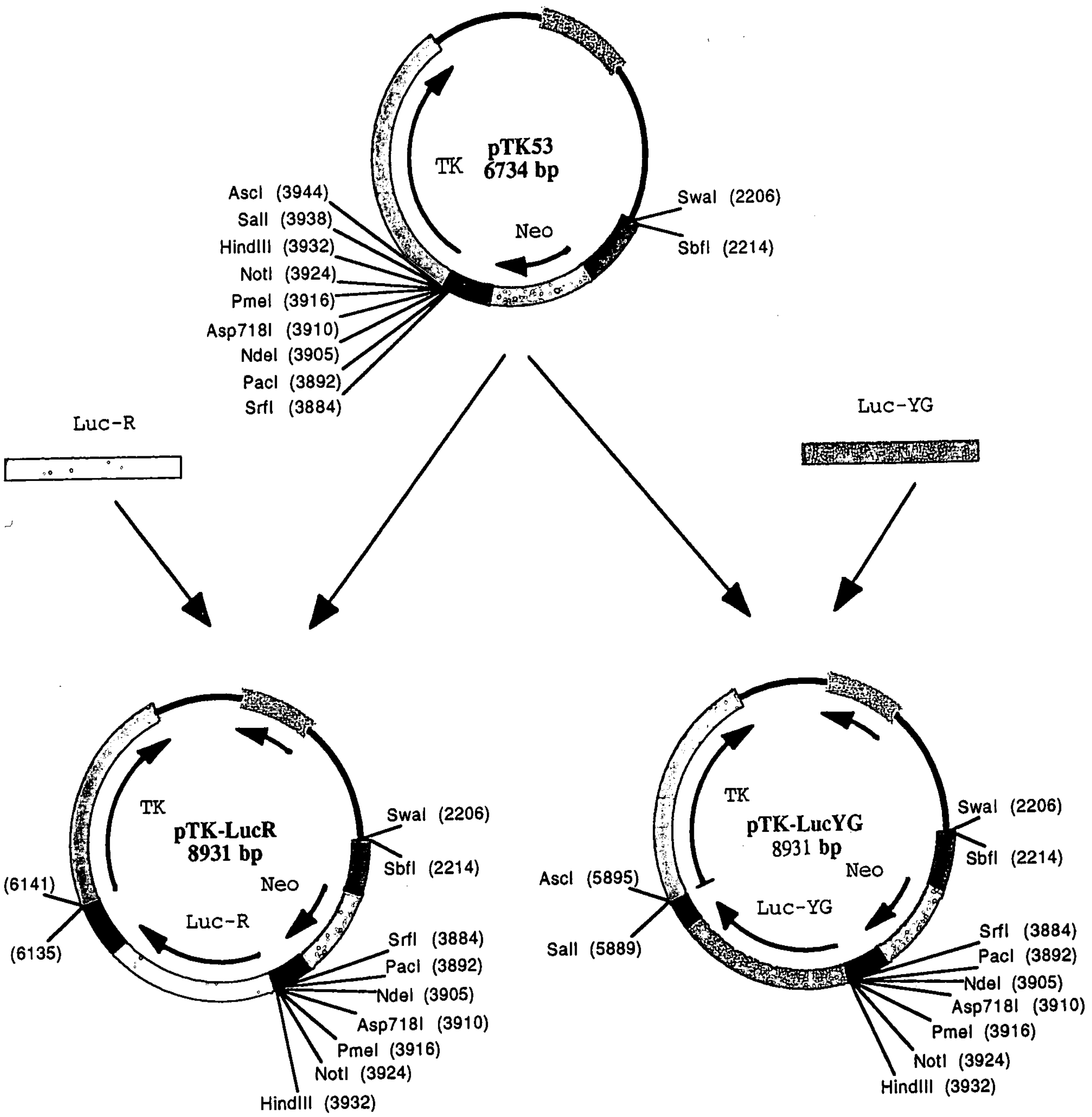
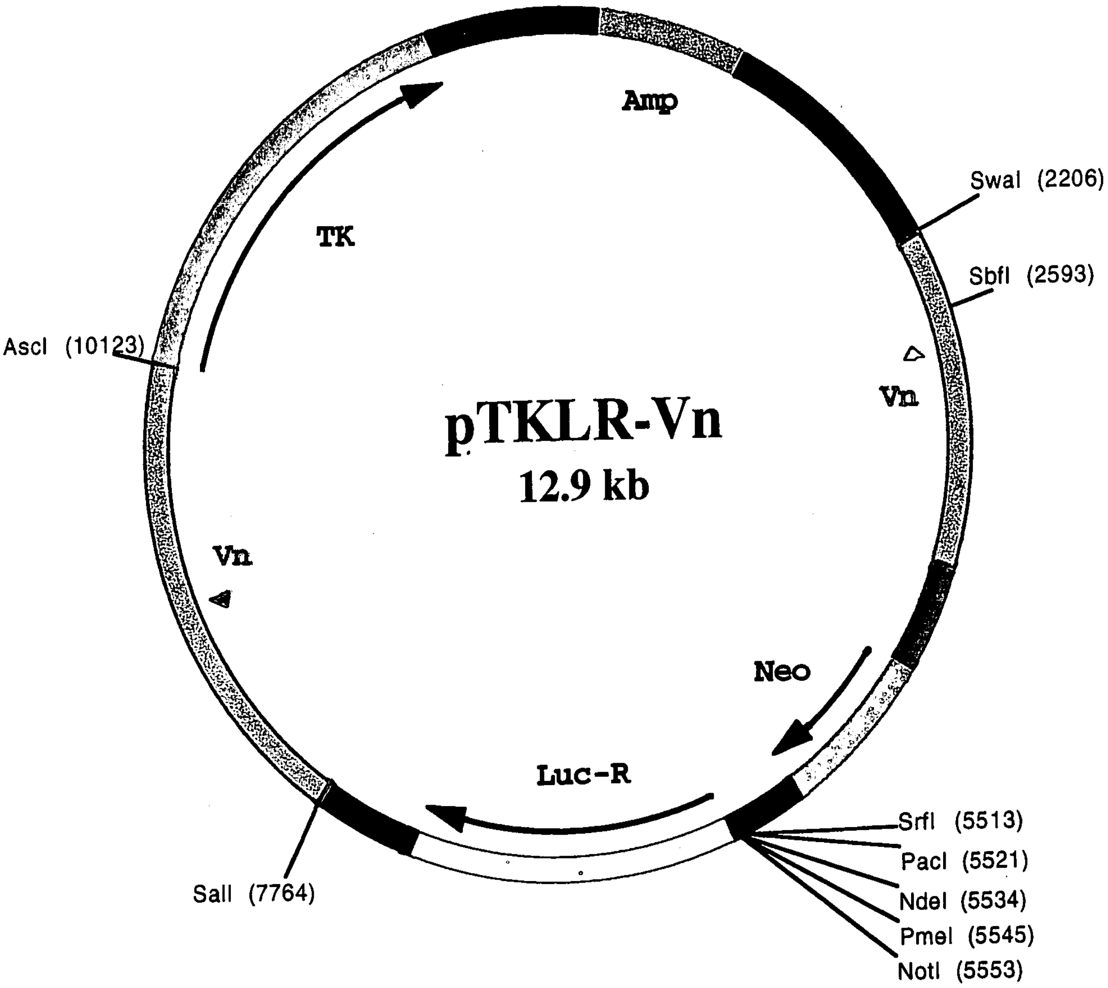

pTK53
6734 bp
TK
Neo
AscI (3944)
SalI (3938)
HindIII (3932)
NotI (3924)
PmeI (3916)
Asp718I (3910)
NdeI (3905)
PacI (3892)
SrfI (3884)
SwaI (2206)
SbfI (2214)
Luc-R
Luc-YG
pTK-LucR
8931 bp
TK
Neo
Luc-R
SwaI (2206)
SbfI (2214)
AscI (6141)
SalI (6135)
SrfI (3884)
PacI (3892)
NdeI (3905)
Asp718I (3910)
PmeI (3916)
NotI (3924)
HindIII (3932)
pTK-LucYG
8931 bp
TK
Neo
Luc-YG
SwaI (2206)
SbfI (2214)
AscI (5895)
SalI (5889)
SrfI (3884)
PacI (3892)
NdeI (3905)
Asp718I (3910)
PmeI (3916)
NotI (3924)
HindIII (3932)

FIG. 2



pTKLR-Vn
12.9 kb
Amp
SwaI (2206)
SbfI (2593)
Vn
Neo
SrfI (5513)
PacI (5521)
NdeI (5534)
PmeI (5545)
NotI (5553)
Luc-R
SalI (7764)
Vn
AscI (10123)
TK

FIG. 3A

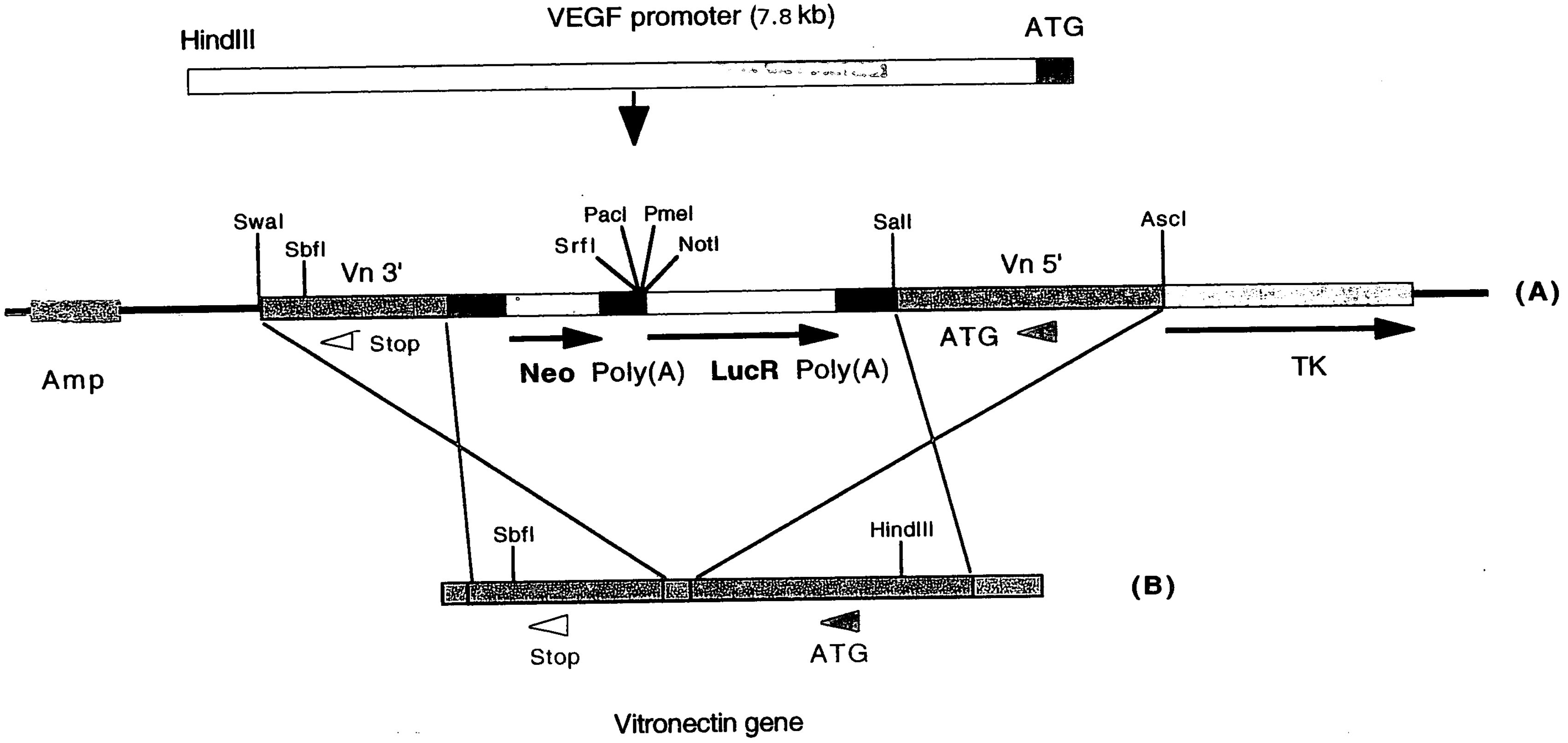

VEGF promoter (7.8 kb)
HindIII
ATG
SwaI
SbfI
Vn 3'
PacI
PmeI
SrfI
NotI
SalI
AscI
Vn 5'
(A)
Stop
Neo
Poly(A)
LucR
Poly(A)
ATG
TK
Amp
SbfI
HindIII
(B)
Stop
ATG
Vitronectin gene

FIG. 3B

```
   1 TCCACCCACC TGTTTCTCAC GTCCCCGGCC TTCCTAGTTA ACTTCATGGT TAAAGAAGCC TCACCCGGGG AGGGTGTGGT GCCACAGAAG GAAGGGTGCT
     AGGTGGGTGG ACAAAGAGTG CAGGGGCCGG AAGGATCAAT TGAAGTACCA ATTTCTTCGG AGTGGGCCCC TCCCACACCA CGGTGTCTTC CTTCCCACGA

 101 CCCACAAGCC CCCAGTGTCT CTGATTTAGG GAGAGCACCT GAGCCCAGTG AGAGTCTTCT CTGTCCCTCA ATCGGTTCTG AAATTCCCCA CTTGCCCTCC
     GGGTGTTCGG GGGTCACAGA GACTAAATCC CTCTCGTGGA CTCGGGTCAC TCTCAGAAGA GACAGGGAGT TAGCCAAGAC TTTAAGGGGT GAACGGGAGG

 201 TTATCCAGGG GACAGGGCTG CCCACCCTAT TCAGGACAGT AGTCTTAAAC TCGTAGCCAA CAGACTTTTT ATTGGGCTGG GAGAAAGAGA TGAGGCTCCT
     AATAGGTCCC CTGTCCCGAC GGGTGGGATA AGTCCTGTCA TCAGAATTTG AGCATCGGTT GTCTGAAAAA TAACCCGACC CTCTTTCTCT ACTCCGAGGA

 301 GAAGCTCAGC CGAGTGGGCT CTGATTCCTA CTTCTCAGAG GTCGGGCAGC CCAGCCAATA CTGAGCAATG GAGCGTGGGT AGGGAGGATT CACAGAGTCC
     CTTCGAGTCG GCTCACCCGA GACTAAGGAT GAAGAGTCTC CAGCCCGTCG GGTCGGTTAT GACTCGTTAC CTCGCACCCA TCCCTCCTAA GTGTCTCAGG

 401 ACTCGCCGGG TTCTAAGGTT GACTCGGTAG TATTTGTCTG AAAGAAAGAA TGGAAAAAGG GTTATGTGAG ATTCTGCCTG ATCCTGTCCA CTGGTCCCAA
     TGAGCGGCCC AAGATTCCAA CTGAGCCATC ATAAACAGAC TTTCTTTCTT ACCTTTTTCC CAATACACTC TAAGACGGAC TAGGACAGGT GACCAGGGTT

 501 GAAGGATAAA GGCTTTTTCT CAGAAGGGAA AGTGAACATC CACCAAGCAG ATAATGTCAC CATCTACAGG CTGTGTTCAG CACCCAGGGA CCAAGACCTG
     CTTCCTATTT CCGAAAAAGA GTCTTCCCTT TCACTTGTAG GTGGTTCGTC TATTACAGTG GTAGATGTCC GACACAAGTC GTGGGTCCCT GGTTCTGGAC

 601 CAGGCAAGGC CTAGCCAAAA CCAGTCTAAG GAGTAGAAAG GGGCTCCCAC CTCCAGAGAA GAAATAGACG CTCTGAATGG GCTCGCAGGT GGCAGGTACA
     GTCCGTTCCG GATCGGTTTT GGTCAGATTC CTCATCTTTC CCCGAGGGTG GAGGTCTCTT CTTTATCTGC GAGACTTACC CGAGCGTCCA CCGTCCATGT

 701 AGCCAGTCCA TATCATAATC ATAGTTGTTG TAGGTTCCTA GCCCACTCTC CTCGCTGGAG AACAAAGAGA ACCAGATTGA ACGTGATGAA CGACGGGAGT
     TCGGTCAGGT ATAGTATTAG TATCAACAAC ATCCAAGGAT CGGGTGAGAG GAGCGACCTC TTGTTTCTCT TGGTCTAACT TGCACTACTT GCTGCCCTCA

 801 TCGAGCTCTG GCTGCGTCTG TGGCCACGCC CTCGGCGTGA ACGATAGCGC TTTCGGCTTC TACGCTTAGA CTTCTGTTTT TTGGCTTGGG CAGAGTGGGA
     AGCTCGAGAC CGACGCAGAC ACCGGTGCGG GAGCCGCACT TGCTATCGCG AAAGCCGAAG ATGCGAATCT GAAGACAAAA AACCGAACCC GTCTCACCCT

 901 TAAGGAGCCA GTGACGTAGA TGCGGCCGGC CATAGCAGCG TCCACTTTCC CTGGCACACC ATGCCAGTTC CGGCTGATGA ATTGGGGTTC TCTGGCTCCA
     ATTCCTCGGT CACTGCATCT ACGCCGGCCG GTATCGTCGC AGGTGAAAGG GACCGTGTGG TACGGTCAAG GCCGACTACT TAACCCCAAG AGACCGAGGT

1001 TCTGTAACAG GGAAGGGGTT AATGCACTTG GCAGATTCTG GCTTTGATTT CTCCAGCAAG GTTGTCTGTC TATCTATTTA TCTATCTTTA TCTATGTATC
     AGACATTGTC CCTTCCCCAA TTACGTGAAC CGTCTAAGAC CGAAACTAAA GAGGTCGTTC CAACAGACAG ATAGATAAAT AGATAGAAAT AGATACATAG

1101 TATCTATATA TCTATGTATC TATCTATCTA TCATCTACCT ACCTACTTAC CTATCTATGT ATCTATCTAT CTATCATCTA CCTACCTACT TACCTATCTA
     ATAGATATAT AGATACATAG ATAGATAGAT AGTAGATGGA TGGATGAATG GATAGATACA TAGATAGATA GATAGTAGAT GGATGGATGA ATGGATAGAT

1201 CCTATTTATT TGTTTGTTTG TTTTCTTTGA AACAGGATCT TAGCACCTAC CTATGGCTGG TTTGCAACTC ACTATGAAGC CATAACTGGC CTCTTAACTC
     GGATAAATAA ACAAACAAAC AAAAGAAACT TTGTCCTAGA ATCGTGGATG GATACCGACC AAACGTTGAG TGATACTTCG GTATTGACCG GAGAATTGAG

1301 ACAAAGATCC ACTTGCCTGT GTCTCTGAGT GCTGGGATTA AAAGCATGTG CCACTACACC CAGCTCCAGT AGGACCTTTA GAACACATTT GCTATGCCTT
     TGTTTCTAGG TGAACGGACA CAGAGACTCA CGACCCTAAT TTTCGTACAC GGTGATGTGG GTCGAGGTCA TCCTGGAAAT CTTGTGTAAA CGATACGGAA

1401 GCCTAAGACA CACAACTCAG TCCCCAGGCC CCAGCCTCCC TGTCTAGAGC TTTTTCCCAT CCTCTCTCCA CTGTATCCCT TGAATCTCTG CCCCATCCGA
     CGGATTCTGT GTGTTGAGTC AGGGGTCCGG GGTCGGAGGG ACAGATCTCG AAAAAGGGTA GGAGAGAGGT GACATAGGGA ACTTAGAGAC GGGGTAGGCT

1501 AACCCCTCAG CGCGCAGCCC CTCCTTCTGC TGTGTTAGGC AAAGTCCAAG GTATGGGATC CAAATAGAGC CAAGCCTCAT CCCCCAAAAG TCAACAGAAG
     TTGGGGAGTC GCGCGTCGGG GAGGAAGACG ACACAATCCG TTTCAGGTTC CATACCCTAG GTTTATCTCG GTTCGGAGTA GGGGGTTTTC AGTTGTCTTC

1601 CAAAGTCTAG CCAGAGCAAA CAGCTCTTGA TCGATGGTGT CACAGTTCCA GGCCCCTCCC CTGGAAGCCC CCACTATCAC AGCCCAGTTT CCAGAGAAAG
     GTTTCAGATC GGTCTCGTTT GTCGAGAACT AGCTACCACA GTGTCAAGGT CCGGGGAGGG GACCTTCGGG GGTGATAGTG TCGGGTCAAA GGTCTCTTTC

1701 AAGCCAGCCT TGCTCTCCCT CCATACCAGA GGATCTGCCC CAGAAGAGGA GTTCGAAAAT GTTCTCCCAG CTGTCCCGCT GAAGCAAGGC AAAGTGCTCA
     TTCGGTCGGA ACGAGAGGGA GGTATGGTCT CCTAGACGGG GTCTTCTCCT CAAGCTTTTA CAAGAGGGTC GACAGGGCGA CTTCGTTCCG TTTCACGAGT

1801 AACACGGCTG ACAGAGAGCT GCCTTCGCAC TCCTCCTGGC TGGGTTGCTG CTGAAATTCG TACTCCCAGT ACTGCTTCCC TGAGGAGCAG AACAGCTGGC
     TTGTGCCGAC TGTCTCTCGA CGGAAGCGTG AGGAGGACCG ACCCAACGAC GACTTTAAGC ATGAGGGTCA TGACGAAGGG ACTCCTCGTC TTGTCGACCG

1901 ATCAGGAGAG ATCTGACCAA GGCAGAGAGG AATCATGGAA TAGAACAGGG ACTCCACCAC CTGCCCCCTT CTCCTCCACC CTGAGTACCC TTGAAGAAGT
     TAGTCCTCTC TAGACTGGTT CCGTCTCTCC TTAGTACCTT ATCTTGTCCC TGAGGTGGTG GACGGGGGAA GAGGAGGTGG GACTCATGGG AACTTCTTCA

2001 AGACCCTTTC CCGGCCACTG TAACGGTGGG CAGGAAGGGC GAACGCTGCA TCAACATTGT CTGGTATGCC ACTGAAGCCT TCGGAGATGT TTCGGGGATA
     TCTGGGAAAG GGCCGGTGAC ATTGCCACCC GTCCTTCCCG CTTGCGACGT AGTTGTAACA GACCATACGG TGACTTCGGA AGCCTCTACA AAGCCCCTAT

2101 ACCAGGGTCC AGGACCCCAT CCTCAAAGCG CCAGTACTGA CTACCCTGAA AGACAGAGAT CAGAAGGGTG AGGACATACC GCTGGCCACA GAAGCAGTCC
     TGGTCCCAGG TCCTGGGGTA GGAGTTTCGC GGTCATGACT GATGGGACTT TCTGTCTCTA GTCTTCCCAC TCCTGTATGG CGACCGGTGT CTTCGTCAGG

2201 TATATCCTAA ACTGGCTGTC ACCTGCTCCT GGAGTCCCTG ACTGCTTTGT CTTCACAGCT CCCCAGCACG TCCATGGCAC CCTTTACCTT GCCTCAGACT
     ATATAGGATT TGACCGACAG TGGACGAGGA CCTCAGGGAC TGACGAAACA GAAGTGTCGA GGGGTCGTGC AGGTACCGTG GGAAATGGAA CGGAGTCTGA

2301 TAGGTCTGGT ACCTTGAACA AGTAGGTCTT CCCCTGACAG TTGATGCGAG TGAAGGCAGC ATCGATGGGG CCCTCAATGC CCCAGACATC TTGGATAAGT
     ATCCAGACCA TGGAACTTGT TCATCCAGAA GGGGACTGTC AACTACGCTC ACTTCCGTCG TAGCTACCCC GGGAGTTACG GGGTCTGTAG AACCTATTCA

2401 TTGGGGTACC CAGGCCTCAC TGCCGTCTCA TCTAGCTCAT AGCAGTACTG CCCTAGAACA GGGGAAACTG TGTGAGAAGC AGATGAGCCT AAGGCAGATC
     AACCCCATGG GTCCGGAGTG ACGGCAGAGT AGATCGAGTA TCGTCATGAC GGGATCTTGT CCCCTTTGAC ACACTCTTCG TCTACTCGGA TTCCGTCTAG

2501 CGACCGCCAC CAGACCTGTC CATAGAGTCA CCTCGGAAGG CAAAGAGGGA CCCATTCTTG AGATCCGTGA AGGCGTCAAA GGGCTTTCCA CTGCACAGTT
     GCTGGCGGTG GTCTGGACAG GTATCTCAGT GGAGCCTTCC GTTTCTCCCT GGGTAAGAAC TCTAGGCACT TCCGCAGTTT CCCGAAAGGT GACGTGTCAA

2601 CTTCCTCTGG AAACTCAGGG GTCCCTTGAT CAGTGGTGTC GGGCCTTAGG ATCTCCTCCT GTTGCTCCAC TTTAGGCGCT GGGGTGCTTG GCTGTTCCTC
     GAAGGAGACC TTTGAGTCCC CAGGGAACTA GTCACCACAG CCCGGAATCC TAGAGGAGGA CAACGAGGTG AAATCCGCGA CCCCACGAAC CGACAAGGAG

2701 AGGATCTAGG AAGGCTGTCG GCTTTAGAGT GCCGTCCGTC CGAGGATTTA GGTCACCGGG TGGAGAGGTG TTCTCGGGTT GCACACCGGT GTTGGTATTG
     TCCTAGATCC TTCCGACAGC CGAAATCTCA CGGCAGGCAG GCTCCTAAAT CCAGTGGCCC ACCTCTCCAC AAGAGCCCAA CGTGTGGCCA CAACCATAAC

2801 TTCTTGGGCT CCTCCACGTA GTCATAGCTC CAATAATCAT CCTCTGGCAT AGTGAACACG TCCCCCCGCG TTACTGCAGG CAGAACGGGG AGCAGTGAGT
     AAGAACCCGA GGAGGTGCAT CAGTATCGAG GTTATTAGTA GGAGACCGTA TCACTTGTGC AGGGGGGCGC AATGACGTCC GTCTTGCCCC TCGTCACTCA

2901 GTCAGGCTGT GGAGGGAGCC CCAGGCCCAC CCACCAGGGC TCTGAACTCA CCTTGGGGCT TGCACTGCTC CATGTAGTCG GCACAGCAGC TCTGATAGTA
     CAGTCCGACA CCTCCCTCGG GGTCCGGGTG GGTGGTCCCG AGACTTGAGT GGAACCCCGA ACGTGACGAG GTACATCAGC CGTGTCGTCG AGACTATCAT
```

FIG. 3C-1

[redacted]

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3001 AGTGCAAAGC TCGTCACACT GACACTT[illegible] GCTGGCCATG AAACCCTGAG TGCAGCGGCC CTTGCATG[illegible] [illegible]CTATGGGAG GGAATATCAG GTTTACAGCC
     TCACGTTTCG AGCAGTGTGA CTGTGAAGAA CGACCGGTAC TTTGGGACTC ACGTCGCCGG GAACGTACTG AGATACCCTC CCTTATAGTC CAAATGTCGG

3101 CAATCTAGGG CACCTGCCCA ACCTGCACTT CCCTAGGTAC CCACCAATCC CCTCCCACAC CTTGGTCAGC CAGAGAAACC CATGCCACCA GGGCTAGTAT
     GTTAGATCCC GTGGACGGGT TGGACGTGAA GGGATCCATG GGTGGTTAGG GGAGGGTGTG GAACCAGTCG GTCTCTTTGG GTACGGTGGT CCCGATCATA

3201 GAAAAAGGGC CTCAGGGGTG CCATGGCAGG CCTCTAGCCC AGGGCCTTGG CAAGCTGGGC GCGGAGCTTC TGGAATCTCG CTGTCCTGCC TGAAAAAAGA
     CTTTTTCCCG GAGTCCCCAC GGTACCGTCC GGAGATCGGG TCCCGGAACC GTTCGACCCG CGCCTCGAAG ACCTTAGAGC GACAGGACGG ACTTTTTTCT

3301 AGCAGACTGA AGAAGAGTTC CTAGTTCCCT GGGTTTCTGC CCTTTATTTG CTCATCCTCT GGCCCAGCCC CATTGCCCTC CTCCAAACAC AGCTGCAGCA
     TCGTCTGACT TCTTCTCAAG GATCAAGGGA CCCAAAGACG GGAAATAAAC GAGTAGGAGA CCGGGTCGGG GTAACGGGAG GAGGTTTGTG TCGACGTCGT

3401 AAGGGTCACA TTCCCAGAAC CCCAGCCCCA GGAGAGCTGG GAAACAGAAA ACCCTCGCCA AGACCAAAGT CAGTAGGGTC ACGGGCAGGA GGGATAACAC
     TTCCCAGTGT AAGGGTCTTG GGGTCGGGGT CCTCTCGACC CTTTGTCTTT TGGGAGCGGT TCTGGTTTCA GTCATCCCAG TGCCCGTCCT CCCTATTGTG

3501 GCTTAGCTTA GCTGGGGAGG TGGAAAGAAG CATGTGTTGT CACCCTCTGA GCCAGTCCCG TTAATCTCCC TGAGCCTTAC TTTTTATAAA GTGGGACCAT
     CGAATCGAAT CGACCCCTCC ACCTTTCTTC GTACACAACA GTGGGAGACT CGGTCAGGGC AATTAGAGGG ACTCGGAATG AAAAATATTT CACCCTGGTA

3601 GGTGCCTTGC CTCATCAGGT GTTGAGAGAT TCCGTGAGCT AGAACAGACA AAACGTTTCG TGCCTGGAGT AGCTTCCAAC TCATTCCCAT AAGCCGTTAT
     CCACGGAACG GAGTAGTCCA CAACTCTCTA AGGCACTCGA TCTTGTCTGT TTTGCAAAGC ACGGACCTCA TCGAAGGTTG AGTAAGGGTA TTCGGCAATA

3701 CGATTTACTG TTTGATCAGG CTAGGTGCTT GTCCCATCCT ACCCCCCGCT TCGAATCTGG ATTTTTGGGG CAAGAAGGGG GGTTGGGGGA GAGCTGGCAA
     GCTAAATGAC AAACTAGTCC GATCCACGAA CAGGGTAGGA TGGGGGGCGA AGCTTAGACC TAAAAACCCC GTTCTTCCCC CCAACCCCCT CTCGACCGTT

3801 GCACTTTGGG GGAGGTTTTC TTTTCTTCTC ATAAAAGAAC AAAGCTTCAT TTCTGGCCTC TCCTTGTTCT CTCTAAGCTG GGTGTTACAG CATAGGAAGT
     CGTGAAACCC CCTCCAAAAG AAAAGAAGAG TATTTTCTTG TTTCGAAGTA AAGACCGGAG AGGAACAAGA GAGATTCGAC CCACAATGTC GTATCCTTCA

3901 AGTGGGTCAG AGTCTATTCT TCTTTCTTTA TTTTTTTTAG ATTTATTTAT TTTATGTTTT GTGTATAAGT GTCTGCTCAC ATGTGCATCT GTGCACCACA
     TCACCCAGTC TCAGATAAGA AGAAAGAAAT AAAAAAAATC TAAATAAATA AAATACAAAA CACATATTCA CAGACGAGTG TACACGTAGA CACGTGGTGT

4001 TGCATGTCTT GTGTCTATGG AGGTCAGAAG AGGGCTTTGA ATACCCTGGA ACTGGAGTTT TGAACAGTTA TGAGCTGCCG TGTGGATGCT GAGAATCAAA
     ACGTACAGAA CACAGATACC TCCAGTCTTC TCCCGAAACT TATGGGACCT TGACCTCAAA ACTTGTCAAT ACTCGACGGC ACACCTACGA CTCTTAGTTT

4101 CCCAGGTCCT CTGTAAGAAC AAGTACTCTT AAAGGCTGAG CCATCTTTCC AGTCCCAGAG CCCATTCCTG AGGCTTTCAC TAATCCATTG ATCCTCGGGG
     GGGTCCAGGA GACATTCTTG TTCATGAGAA TTTCCGACTC GGTAGAAAGG TCAGGGTCTC GGGTAAGGAC TCCGAAAGTG ATTAGGTAAC TAGGAGCCCC

4201 GACCACCCTG GCCACACCTT CAATGACCTC ATTTATTTTA AAAAAAAAAT GGACTCATTG GGCATACTTT CTAGACTCAC ATACTAAGTG GGATTTCTCT
     CTGGTGGGAC CGGTGTGGAA GTTACTGGAG TAAATAAAAT TTTTTTTTTA CCTGAGTAAC CCGTATGAAA GATCTGAGTG TATGATTCAC CCTAAAGAGA

4301 ATAAAGAAGT GCTCACTGGG GTAGAGTGCC AGGTTTTGGG CCAAATTCCA AGCACTGGCA CACTTCTGAA GCCCCTCCGT TTTCTGTTCT GTAATCACAG
     TATTTCTTCA CGAGTGACCC CATCTCACGG TCCAAAACCC GGTTTAAGGT TCGTGACCGT GTGAAGACTT CGGGGAGGCA AAAGACAAGA CATTAGTGTC

4401 GCGAGCGTGC CTTTGGTGTC TCTTCTCTAT GGACCGCAGT AGTCTCAGCG GCAAAATGAA ACACTAAATT TTACTCCCTA CAGACGCGTG AAGCCTAAGT
     CGCTCGCACG GAAACCACAG AGAAGAGATA CCTGGCGTCA TCAGAGTCGC CGTTTTACTT TGTGATTTAA AATGAGGGAT GTCTGCGCAC TTCGGATTCA

4501 GGAAACCGGC ATTAAAGGGC TTTAAGAATC TCAACTGCGA TTCTTTAACC ATCCGGAGGG GACGTGGATA CATGTAGCCA GCTTGCTTCC ACATTTTGGG
     CCTTTGGCCG TAATTTCCCG AAATTCTTAG AGTTGACGCT AAGAAATTGG TAGGCCTCCC CTGCACCTAT GTACATCGGT CGAACGAAGG TGTAAAACCC

4601 GAGCCGAGCG AGCGGTAGGA AATGGAAGAC AGCTCTTTAC AGCCCTTTCT ACAGCATCTT GCACACCACC AAGGGGAGAC TGGGGAGAGG AGGCGGAGCC
     CTCGGCTCGC TCGCCATCCT TTACCTTCTG TCGAGAAATG TCGGGAAAGA TGTCGTAGAA CGTGTGGTGG TTCCCCTCTG ACCCCTCTCC TCCGCCTCGG

4701 AGGTGTGGGC GTGGCTGGAG ACCTGGGGTA GGCTTGCGCC TGCGTCGGGG GCGGAGCCCG TGAAACCTAG AGGCGGGGCG TCAAATCCTT GACTCTGCTG
     TCCACACCCG CACCGACCTC TGGACCCCAT CCGAACGCGG ACGCAGCCCC CGCCTCGGGC ACTTTGGATC TCCGCCCCGC AGTTTAGGAA CTGAGACGAC

4801 CTCAGAGGCG TGGTTGCTGT TGAGCATCTT AGCTCCGCTG TGCTTAGATT GGAGCAGCGC TTTGTTCCGG GCACCGGCGT CTCTACCCTC CCGCGTCTGG
     GAGTCTCCGC ACCAACGACA ACTCGTAGAA TCGAGGCGAC ACGAATCTAA CCTCGTCGCG AAACAAGGCC CGTGGCCGCA GAGATGGGAG GGCGCAGACC

4901 TCCATGCTTC TCTCTCCCTT CATGCCCTTC CTAAGTCGCT GAGTCCCGGA GCTGCCCTCC TCCTTCTGCT TCTACACTTG TAGCCCAGCA CCTTTACCGG
     AGGTACGAAG AGAGAGGGAA GTACGGGAAG GATTCAGCGA CTCAGGGCCT CGACGGGAGG AGGAAGACGA AGATGTGAAC ATCGGGTCGT GGAAATGGCC
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FIG. 3C-2

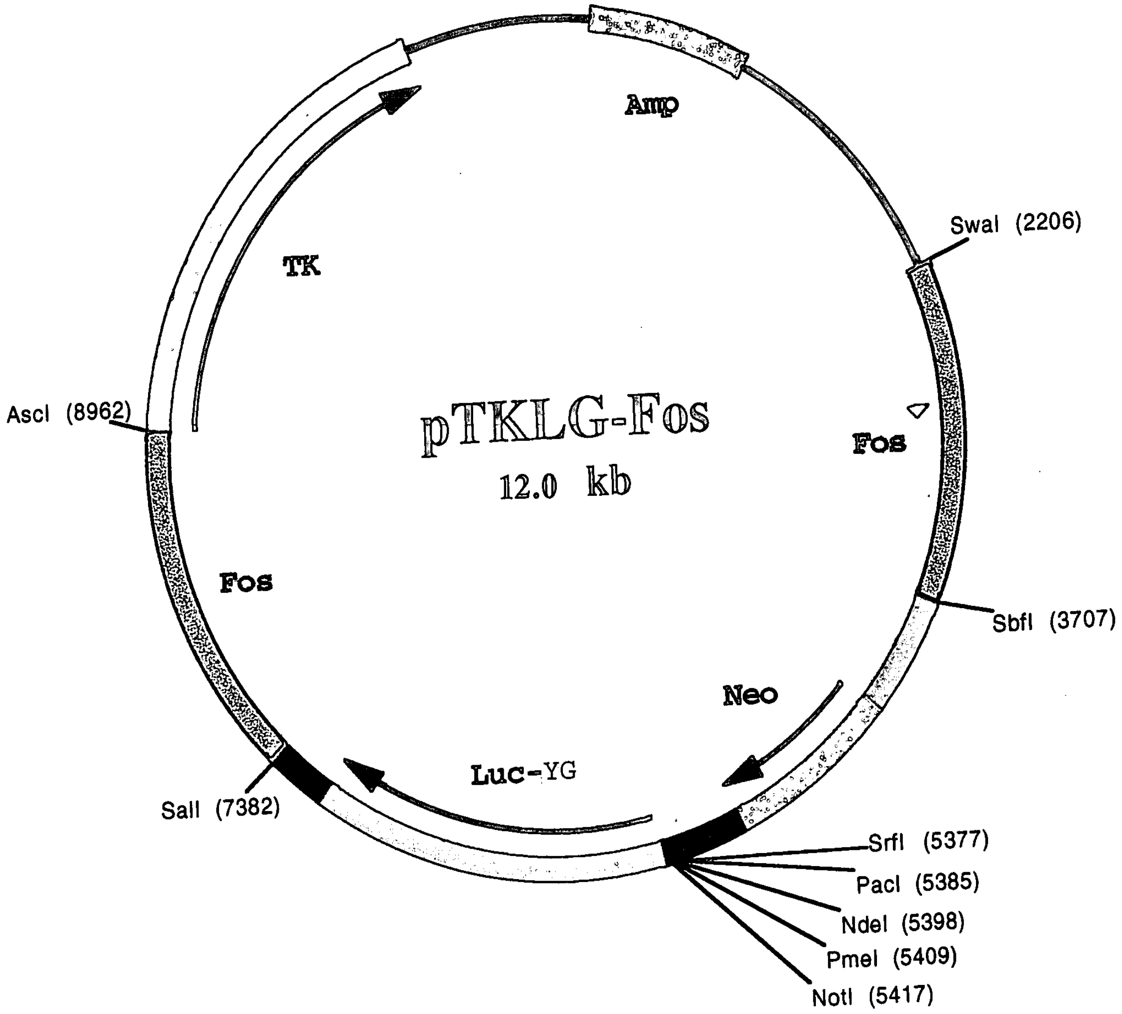
Amp
TK
SwaI (2206)
pTKLG-Fos
12.0 kb
Fos
AscI (8962)
Fos
SbfI (3707)
Neo
Luc-YG
SalI (7382)
SrfI (5377)
PacI (5385)
NdeI (5398)
PmeI (5409)
NotI (5417)

FIG. 4A

```
1    GCAGCTGGGC AAACGTTGGC GATGCCGGTG CAAAGTATAT ACCCGGTGGT TAGCAGAAGC TGAGAACTTT TAGCCGAAAG CCGGCTCCCT AAGCCGAAGC
     CGTCGACCCG TTTGCAACCG CTACGGCCAC GTTTCATATA TGGGCCACCA ATCGTCTTCG ACTCTTGAAA ATCGGCTTTC GGCCGAGGGA TTCGGCTTCG
101  TAGGCAAGTA GGGGAAGAAA AAGAAAAAAA AAATTCCAGA GAAGCTTCCA GAGCCTCCTC CTCTTCCCTC TTCCTTCAAA AGGACTGCAA GTCCGCAGTC
     ATCCGTTCAT CCCCTTCTTT TTCTTTTTTT TTTAAGGTCT CTTCGAAGGT CTCGGAGGAG GAGAAGGGAG AAGGAAGTTT TCCTGACGTT CAGGCGTCAG
201  ACCCTCCACC CAGCAAGAGT TAGGGCCTCG AACCCCGGTC ACGCTGCCTC CGCCTCCTGC CGAACGTAAC GGGGGACCCG TGCGTAAAGC GTGACGCGCT
     TGGGAGGTGG GTCGTTCTCA ATCCCGGAGC TTGGGGCCAG TGCGACGGAG GCGGAGGACG GCTTGCATTG CCCCCTGGGC ACGCATTTCG CACTGCGCGA
301  GGAATCCTCC GTCTGACGCG GGGCACGCAC AGGCCGCAGC CCCTCCGCCC GCCCCGCCCC TGACGTCCGG GCACGTTCTA TTTTGGAACG CCGAGGCCAC
     CCTTAGGAGG CAGACTGCGC CCCGTGCGTG TCCGGCGTCG GGGAGGCGGG CGGGGCGGGG ACTGCAGGCC CGTGCAAGAT AAAACCTTGC GGCTCCGGTG
401  GTTGCTAAGG GAGGGGGCAG CGTGGCTTTG TGATTGGCTG TCGCGCGCAG CTTTAGCCAA TCAGCGTTCC CTTCCTATTT GTAGAGCGTA GCTCCCTTCC
     CAACGATTCC CTCCCCCGTC GCACCGAAAC ACTAACCGAC AGCGCGCGTC GAAATCGGTT AGTCGCAAGG GAAGGATAAA CATCTCGCAT CGAGGGAAGG
501  TTGCTTTTTG TGGTTCTTCC CGTGCTGGGG GTCTCCAAGA GGAGAGCTAG GATTCTTGTC GCGATCGGGA CTCGTTGTCA CCCCATGGTC TGCGAGGACT
     AACGAAAAAC ACCAAGAAGG GCACGACCCC CAGAGGTTCT CCTCTCGATC CTAAGAACAG CGCTAGCCCT GAGCAACAGT GGGGTACCAG ACGCTCCTGA
601  TGTGTGGACC TGGTCTGTTG TCATAAGCTA GAGGCTTTTG GCTGAGTGTT AGCGCCTCTA AGGGGGAACT GAAGGCCTCA TCCTTCTCAG GCACACATAT
     ACACACCTGG ACCAGACAAC AGTATTCGAT CTCCGAAAAC CGACTCACAA TCGCGGAGAT TCCCCCTTGA CTTCCGGAGT AGGAAGAGTC CGTGTGTATA
701  ACGTGCTCCT GAGCTCTAGA CACTCAGTCC TTCCGAGGTG TTCAAACACT AGATGAGCTA GCCTACGGAG AGGCAGCCAG GTGGTCTCTA AAAGGTCTGC
     TGCACGAGGA CTCGAGATCT GTGAGTCAGG AAGGCTCCAC AAGTTTGTGA TCTACTCGAT CGGATGCCTC TCCGTCGGTC CACCAGAGAT TTTCCAGACG
801  CTTCCCTTAG TTCCCAGGCT CTGATTGGCC AGGGATTCAG CCCTTCCCTC GCCACGCCCC CTAGAGTAGT TAAGCCTCTA GGATTCCACT TGCGGGAAGG
     GAAGGGAATC AAGGGTCCGA GACTAACCGG TCCCTAAGTC GGGAAGGGAG CGGTGCGGGG GATCTCATCA ATTCGGAGAT CCTAAGGTGA ACGCCCTTCC
901  GGGGGGGGGG GGGCGTGATG GACGCTTCTT GGGGACGCAG ATCCTATGTC ACCCCATCCC CTGCAAGACA GTCTGAGAGA TTCTCGCTGT CACTTTTCTC
     CCCCCCCCCC CCCGCACTAC CTGCGAAGAA CCCCTGCGTC TAGGATACAG TGGGGTAGGG GACGTTCTGT CAGACTCTCT AAGAGCGACA GTGAAAAGAG
1001 TGCCTATCAG TTCACTGAAA CCTGTCAGTC TCACTGGGAA GAGACAGACA CTCGGAAGGG ATGCTCTCAA CTCTTAGGCC GGTCCCCCAA CACCGTTGGA
     ACGGATAGTC AAGTGACTTT GGACAGTCAG AGTGACCCTT CTCTGTCTGT GAGCCTTCCC TACGAGAGTT GAGAATCCGG CCAGGGGGTT GTGGCAACCT
1101 ACTGGGATCT CCGCCTGCGG GAGCCCTCAT GCAGTGGGGG GTGTGTTTGT GTGTGAGTGG AGAGGAAGGC TTGGCTAAGG CCTCTCCCTC TCCCTCCCTC
     TGACCCTAGA GGCGGACGCC CTCGGGAGTA CGTCACCCCC CACACAAACA CACACTCACC TCTCCTTCCG AACCGATTCC GGAGAGGGAG AGGGAGGGAG
1201 TGTGGTGGGG GTTGGGGGGT TTTGGCTGTA TGTGTGTGTG AATGTCTGTG GCTCCATCCC GGGAGTTTGT CACCAGGTTC TGTCCAGCCT CCTCTCCCAC
     ACACCACCCC CAACCCCCCA AAACCGACAT ACACACACAC TTACAGACAC CGAGGTAGGG CCCTCAAACA GTGGTCCAAG ACAGGTCGGA GGAGAGGGTG
1301 CCACCCCCCC ACACCTAAGA GTCACCAACC CGGGGTGTGA TTCACCACCC GCTGGAACCG TGCAACCTTT CCCCGAGGAA GAAGGAGGAG GTAGAAGGCA
     GGTGGGGGGG TGTGGATTCT CAGTGGTTGG GCCCCACACT AAGTGGTGGG CGACCTTGGC ACGTTGGAAA GGGGCTCCTT CTTCCTCCTC CATCTTCCGT
1401 GTTGAACAGA ATCTCTCATT AACCACTGCG TCACGGTGTA GTGGAAGGGT GGGTGTTGTG GCTTTTTGCC TGTGACACAC ACATCCACAC CCGCTCACCC
     CAACTTGTCT TAGAGAGTAA TTGGTGACGC AGTGCCACAT CACCTTCCCA CCCACAACAC CGAAAAACGG ACACTGTGTG TGTAGGTGTG GGCGAGTGGG
1501 TGTGCTCACT CACAGGGTCG GTCTCTCTTA TCTCTCTTGG GCGTGTGTGT GTCGGTGGCT TTGTTTGTGT GTCTACGCCT GTGTGTGTAT GTCTCACCCC
     ACACGAGTGA GTGTCCCAGC CAGAGAGAAT AGAGAGAACC CGCACACACA CAGCCACCGA AACAAACACA CAGATGCGGA CACACACATA CAGAGTGGGG
1601 GTAGGAGTGC GCCGGTCTCG GGGAAATGCC CGGCTCCTTC GTGCCAACGG TCACCGCAAT CACAACCAGC CAGGATCTTC AGTGGCTCGT GCAACCCACC
     CATCCTCACG CGGCCAGAGC CCCTTTACGG GCCGAGGAAG CACGGTTGCC AGTGGCGTTA GTGTTGGTCG GTCCTAGAAG TCACCGAGCA CGTTGGGTGG
1701 CTCATCTCTT CCATGGCCCA GTCCCAGGGG CAGCCACTGG CCTCCCAGCC TCCAGCTGTT GACCCTTATG ACATGCCAGG AACCAGCTAC TCAACCCCAG
     GAGTAGAGAA GGTACCGGGT CAGGGTCCCC GTCGGTGACC GGAGGGTCGG AGGTCGACAA CTGGGAATAC TGTACGGTCC TTGGTCGATG AGTTGGGGTC
1801 GCCTGAGTGC CTACAGCACT GGCGGGGCAA GCGGAAGTGG TGGGCCTTCA ACCAGCACAA CCACCAGTGG ACCTGTGTCT GCCCGTCCAG CCAGAGCCAG
     CGGACTCACG GATGTCGTGA CCGCCCCGTT CGCCTTCACC ACCCGGAAGT TGGTCGTGTT GGTGGTCACC TGGACACAGA CGGGCAGGTC GGTCTCGGTC
1901 GCCTAGAAGA CCCCGAGAAG AGACAGTAAG TATGAGGCCT CAGGAGTTGG GATGGAGGAG CCTAGCTAGG GATGTGGGCT CAGTTTGTAC AGTGCCTTGC
     CGGATCTTCT GGGGCTCTTC TCTGTCATTC ATACTCCGGA GTCCTCAACC CTACCTCCTC GGATCGATCC CTACACCCGA GTCAAACATG TCACGGAACG
2001 TGCCATGCAT GAAGATCCCT AGCACAGCAT AAGCCAGGAG TGGTTATGCA GACCTGTAAC CCCAGCTCTC AGAAGGTGGA GGCAGGAGGA GCAGGAGTTC
     ACGGTACGTA CTTCTAGGGA TCGTGTCGTA TTCGGTCCTC ACCAATACGT CTGGACATTG GGGTCGAGAG TCTTCCACCT CCGTCCTCCT CGTCCTCAAG
2101 GAGGCCAGCC TGTGCTACTT ATGGAGTCCA GCCTGCACTG CAAGAGATCA TTATTTTCAA AAGTTGGCCT TGGGGGGAGG TGGGTGAGGG AAGTAAGAGA
     CTCCGGTCGG ACACGATGAA TACCTCAGGT CGGACGTGAC GTTCTCTAGT AATAAAAGTT TTCAACCGGA ACCCCCCTCC ACCCACTCCC TTCATTCTCT
2201 AAGTGACAGT AATTTTGTCA CTTAATAGTT GGAGGTTCCT CTGAGGCCTC AAGTCTGAAG GAACTTTACC ATTCTGGCCA GTGAGGAGTA GGGGTTATTA
     TTCACTGTCA TTAAAACAGT GAATTATCAA CCTCCAAGGA GACTCCGGAG TTCAGACTTC CTTGAAATGG TAAGACCGGT CACTCCTCAT CCCCAATAAT
2301 TTTGGGGTTC AGGAGGAAGG AAGTTTTCTT AGGGCTGATA GAGGTACCCC CAGATCTCAT GGTCCTTATC TCTGACTCAG CTTACCCCAG AAGAAGAAGA
     AAACCCCAAG TCCTCCTTCC TTCAAAAGAA TCCCGACTAT CTCCATGGGG GTCTAGAGTA CCAGGAATAG AGACTGAGTC GAATGGGGTC TTCTTCTTCT
2401 AAAGCGAAGG GTTCGCAGAG AGCGGAACAA GCTGGCTGCA GCTAAGTGCA GGAACCGTCG GAGGGAGCTG ACAGATCGAC TTCAGGCGGT AAGGAGGAGT
     TTTCGCTTCC CAAGCGTCTC TCGCCTTGTT CGACCGACGT CGATTCACGT CCTTGGCAGC CTCCCTCGAC TGTCTAGCTG AAGTCCGCCA TTCCTCCTCA
2501 CTGGGGGTGT CTTGAGGCCG TGCTGGGAGC ACTCTGCCTT GTTCTTCCCC CGTTTCTCAC TGTGCCTGTG TCCTAAACGA GGAAACCCCC TCTTAGGGAA
     GACCCCCACA GAACTCCGGC ACGACCCTCG TGAGACGGAA CAAGAAGGGG GCAAAGAGTG ACACGGACAC AGGATTTGCT CCTTTGGGGG AGAATCCCTT
2601 CAGGGGTCAG TATAGGCTGA TGGAGTGGCT CCATATGCAT GCTCAGACCC ATGCCCACTT ACTTTCGACT GTTCCCCACT TTCCCTGAAT ATGTCCCCAC
     GTCCCCAGTC ATATCCGACT ACCTCACCGA GGTATACGTA CGAGTCTGGG TACGGGTGAA TGAAAGCTGA CAAGGGGTGA AAGGGACTTA TACAGGGGTG
2701 ATGTCACCCT CCTGGCTTTC TCTCAGCCTA AGGAGACAAG CTAGAGGAGG TAATTCTCTC ACCTTCTTTT CTTCACTAAA TAATAATCCA TTTTGCCTTC
     TACAGTGGGA GGACCGAAAG AGAGTCGGAT TCCTCTGTTC GATCTCCTCC ATTAAGAGAG TGGAAGAAAA GAAGTGATTT ATTATTAGGT AAAACGGAAG
2801 CTGCCTCCAT TTTTTTTTCC TGAGCTGGGG ATCTACCTGT CGTAGTTCAG CCCTCCTCCC CCAACTTGAT AGCCTCAAGT TTCAGCCCTT GGCTGAGATG
     GACGGAGGTA AAAAAAAAGG ACTCGACCCC TAGATGGACA GCATCAAGTC GGGAGGAGGG GGTTGAACTA TCGGAGTTCA AAGTCGGGAA CCGACTCTAC
2901 CCATCATCCT GACTGGCTCT GGCTGGAAAC TATTTTGTGC TAAGTCAATT CCTTGTCTGC TACTTCAGCT ATCTACAGTY CTGCCGAACT TGAGCTGGTG
     GGTAGTAGGA CTGACCGAGA CCGACCTTTG ATAAAACACG ATTCAGTTAA GGAACAGACG ATGAAGTCGA TAGATGTCAR GACGGCTTGA ACTCGACCAC
3001 GCGCCCACCA AGCCCACTTC TTTCTCTCTT TTTTACCTCA GTGCAACCCC CCACACACAA AACTTCATGC CTGCCCCTTG AAACCAGGGT GCGTCTCTGA
     CGCGGGTGGT TCGGGTGAAG AAAGAGAGAA AAAATGGAGT CACGTTGGGG GGTGTGTGTT TTGAAGTACG GACGGGGAAC TTTGGTCCCA CGCAGAGACT
3101 CTCCCCGTCG GGAGGCTGAA GGAGATGGGT AACAGAACCT CATTAAAAAC AACACATAAG CATTACCTAC TGACTCAACA AACTGTAGTG TTTTTCTTTT
     GAGGGGCAGC CCTCCGACTT CCTCTACCCA TTGTCTTGGA GTAATTTTTG TTGTGTATTC GTAATGGATG ACTGAGTTGT TTGACATCAC AAAAAGAAAA
3201 TTCCTCTCAA AAAATTATTT CGTTTGTTTA TTTATTATTT GCTTATGTTT GAGTGAGTGC TGGTGCACCA CAGCACACAT ACGAGGTCAG AGGGAAATTT
     AAGGAGAGTT TTTTAATAAA GCAAACAAAT AAATAATAAA CGAATACAAA CTCACTCACG ACCACGTGGT GTCGTGTGTA TGCTCCAGTC TCCCTTTAAA
3301 TCATAGTTTG TTCTCTCCTT CCGTGTTGTG GGTGCTTGCT GGCAATCTCC TTCACTCAGT GAGCTACAAT GCCCCCTTCT GCCCTTTAAG GCAGAGTACT
     AGTATCAAAC AAGAGAGGAA GGCACAACAC CCACGAACGA CCGTTAGAGG AAGTGAGTCA CTCGATGTTA CGGGGGAAGA CGGGAAATTC CGTCTCATGA
3401 CCTTAGTACA GGGGGACCCT TTCCTCGGCC TCTCAAAGTT GAGATTACAA ATGTTCACCA TCACACCAGG CTTGGAGTTC TTGCCTATCA GTGACGTCCA
     GGAATCATGT CCCCCTGGGA AAGGAGCCGG AGAGTTTCAA CTCTAATGTT TACAAGTGGT AGTGTGGTCC GAACCTCAAG AACGGATAGT CACTGCAGGT
3501 CTCCTGCCTA GCTTCTTCCC AACCATCTTT TAGTCTGATG GGGAAACCGA GGCACGAGTA GCATGGTCTA CCAGGATTTC CTCTTAGGGG ACGGTCCCCT
     GAGGACGGAT CGAAGAAGGG TTGGTAGAAA ATCAGACTAC CCCTTTGGCT CCGTGCTCAT CGTACCAGAT GGTCCTAAAG GAGAATCCCC TGCCAGGGGA
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FIG. 4B-1

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3601 CAGTTGGGAG GGAGCTGTCC AGCCCC[illegible]G ATCAGCAGCA AGAATGTATG AGTGTGGGGT TGGGCGG[illegible] [illegible]AGCTACTCT GTGTGGTCGC TGACCAGCAA
     GTCAACCCTC CCTCGACAGG TCGGGGGACC TAGTCGTCGT TCTTACATAC TCACACCCCA ACCCGCCCAC TTCGATGAGA CACACCAGCG ACTGGTCGTT

3701 TTCTCCTTTC TCTGTCTCCT ATGACCTGGC CCTGCTGGGA TCCATTAGGA AACTGATCAG CTTGAAGAGG AAAAGGCAGA GCTGGAGTCG GAGATCGCCG
     AAGAGGAAAG AGACAGAGGA TACTGGACCG GGACGACCCT AGGTAATCCT TTGACTAGTC GAACTTCTCC TTTTCCGTCT CGACCTCAGC CTCTAGCGGC

3801 AGCTGCAAAA AGAGAAGGAA CGCCTGGAGT TTGTCCTGGT GGCCCACAAA CCGGGCTGCA AGATCCCCTA CGAAGAGGGG CCGGGGCCAG GCCCGCTGGC
     TCGACGTTTT TCTCTTCCTT GCGGACCTCA AACAGGACCA CCGGGTGTTT GGCCCGACGT TCTAGGGGAT GCTTCTCCCC GGCCCCGGTC CGGGCGACCG

3901 CGAGGTGAGA GATTTGCCAG GGTCAACATC CGCTAAGGAA GACGGCTTCG GCTGGCTGCT GCCGCCCCCT CCACCACCGC CCCTGCCCTT CCAGAGCAGC
     GCTCCACTCT CTAAACGGTC CCAGTTGTAG GCGATTCCTT CTGCCGAAGC CGACCGACGA CGGCGGGGGA GGTGGTGGCG GGGACGGGAA GGTCTCGTCG

4001 CGAGACGCAC CCCCCAACCT GACGGCTTCT CTCTTTACAC ACAGTGAAGT TCAAGTCCTC GGCGACCCCT TCCCCGTTGT TAGCCCTTCG TACACTTCCT
     GCTCTGCGTG GGGGGTTGGA CTGCCGAAGA GAGAAATGTG TGTCACTTCA AGTTCAGGAG CCGCTGGGGA AGGGGCAACA ATCGGGAAGC ATGTGAAGGA

4101 CGTTTGTCCT CACCTGCCCG GAGGTCTCCG CGTTCGCCGG CGCCCAACGC ACCAGCGGCA GCGAGCAGCC GTCCGACCCG CTGAACTCGC CCTCCCTTCT
     GCAAACAGGA GTGGACGGGC CTCCAGAGGC GCAAGCGGCC GCGGGTTGCG TGGTCGCCGT CGCTCGTCGG CAGGCTGGGC GACTTGAGCG GGAGGGAAGA

4201 TGCTCTGTAA ACTCTTTAGA CAAACAAAAC AAACAAACCC GCAAGGAACA AGGAGGAGGA AGATGAGGAG GAGAGGGGAG GAAGCAGTCC GGGGGTGTGT
     ACGAGACATT TGAGAAATCT GTTTGTTTTG TTTGTTTGGG CGTTCCTTGT TCCTCCTCCT TCTACTCCTC CTCTCCCCTC CTTCGTCAGG CCCCCACACA

4301 GTGTGGACCC TTTGACTCTT CTGTCTGACC ACCTGCCGCC TCTGCCATCG GACATGACGG AAGGACCTCC TTTGTGTTTT GTGCTCTGTC TCTGGTTTTC
     CACACCTGGG AAACTGAGAA GACAGACTGG TGGACGGCGG AGACGGTAGC CTGTACTGCC TTCCTGGAGG AAACACAAAA CACGAGACAG AGACCAAAAG

4401 TGTGCCCCGG CGAGACCGGA GAGCTGGTGA CTTTGGGGAC AGGGGGTGGG GCGGGGATGA ACACCCCTCC TGCATATCTT TGTCCTGTTA CTTCAACCCA
     ACACGGGGCC GCTCTGGCCT CTCGACCACT GAAACCCCTG TCCCCCACCC CGCCCCTACT TGTGGGGAGG ACGTATAGAA ACAGGACAAT GAAGTTGGGT

4501 ACTTCTGGGG ATAGATGGCT GACTGGGTGG GTAGGGTGGG GTGCAACGCC CACCTTTGGC GTCTTACGTG AGGCTGGAGG GGAAAGAGTG CTGAGTGTGG
     TGAAGACCCC TATCTACCGA CTGACCCACC CATCCCACCC CACGTTGCGG GTGGAAACCG CAGAATGCAC TCCGACCTCC CCTTTCTCAC GACTCACACC

4601 GGTGCAGGGT GGGTTGAGGT CGAGCTGGCA TGCACCTCCA GAGAGACCCA ACGAGGAAAT GACAGCACCG TCCTGTCCTT CTTTTCCCCC ACCCACCCAT
     CCACGTCCCA CCCAACTCCA GCTCGACCGT ACGTGGAGGT CTCTCTGGGT TGCTCCTTTA CTGTCGTGGC AGGACAGGAA GAAAAGGGGG TGGGTGGGTA

4701 CCACCCTCAA GGGTGCAGGG TGACCAAGAT AGCTCTGTTT TGCTCCCTCG GGCCTTAGCT GATTAACTTA ACATTTCCAA GAGGTTACAA CCTCCTCCTG
     GGTGGGAGTT CCCACGTCCC ACTGGTTCTA TCGAGACAAA ACGAGGGAGC CCGGAATCGA CTAATTGAAT TGTAAAGGTT CTCCAATGTT GGAGGAGGAC

4801 GACGAATTGA GCCCCCGACT GAGGGAAGTC GATGCCCCCT TTGGGAGTCT GCTAACCCCA CTTCCCGCTG ATTCCAAAAT GTGAACCCCT ATCTGACTGC
     CTGCTTAACT CGGGGGCTGA CTCCCTTCAG CTACGGGGGA AACCCTCAGA CGATTGGGGT GAAGGGCGAC TAAGGTTTTA CACTTGGGGA TAGACTGACG

4901 TCAGTCTTTC CCTCCTGGGA AAACTGGCTC AGGTTGGATT TTTTTCCTCG TCTGCTACAG AGCCCCCTCC CAACTCAGGC CCGCTCCCAC CCCTGTGCAG
     AGTCAGAAAG GGAGGACCCT TTTGACCGAG TCCAACCTAA AAAAAGGAGC AGACGATGTC TCGGGGGAGG GTTGAGTCCG GGCGAGGGTG GGGACACGTC

5001 TATTATGCTA TGTCCCTCTC ACCCTCACCC CCACCCCAGG CGCCCTTGGC CGTCCTCGTT GGGCCTTACT GGTTTTGGGC AGCAGGGGGC GCTGCGACGC
     ATAATACGAT ACAGGGAGAG TGGGAGTGGG GGTGGGGTCC GCGGGAACCG GCAGGAGCAA CCCGGAATGA CCAAAACCCG TCGTCCCCCG CGACGCTGCG

5101 CCATCTTGCT GGAGCGCTTT ATACTGTGAA TGAGTGGTCG GATTGCTGGG CGCGCCGGAT GGGATTGACC CCCAGCCCTC CAAAACTTTT CCTGGGCCTC
     GGTAGAACGA CCTCGCGAAA TATGACACTT ACTCACCAGC CTAACGACCC GCGCGGCCTA CCCTAACTGG GGGTCGGGAG GTTTTGAAAA GGACCCGGAG

5201 CCCTTCTTCC ACTTGCTTCC TCCCTCCCCT TGACAGGGAG TTAGACTCGA AAGGATGACC ACGACGCATC CCGGTGGCCT TCTTGCTCAG GCCCCAGACT
     GGGAAGAAGG TGAACGAAGG AGGGAGGGGA ACTGTCCCTC AATCTGAGCT TTCCTACTGG TGCTGCGTAG GGCCACCGGA AGAACGAGTC CGGGGTCTGA

5301 TTTTCTCTTT AAGTCCTTCG CCTTCCCCAG CCTAGGACGC CAACTTCTCC CCACCCTGGG AGCCCCGCAT CCTCTCACAG AGGTCGAGGC AATTTTCAGA
     AAAAGAGAAA TTCAGGAAGC GGAAGGGGTC GGATCCTGCG GTTGAAGAGG GGTGGGACCC TCGGGGCGTA GGAGAGTGTC TCCAGCTCCG TTAAAAGTCT

5401 GAAGTTTTCA GGGCTGAGGC TTTGGCTCCC CTATCCTCGA TATTTGAATC CCCAAATAGT TTTTGGACTA GCATACTTAA GAGGGGGCTG AGTTCCCACT
     CTTCAAAAGT CCCGACTCCG AAACCGAGGG GATAGGAGCT ATAAACTTAG GGGTTTATCA AAAACCTGAT CGTATGAATT CTCCCCCGAC TCAAGGGTGA

5501 ATCCCACTCC ATCCAATTCC TTCAGTCCCA AAGACGAGTT CTGTCCCTTC CCTCCAGCTT TCACCTCGTG AGAATCCCAC GAGTCAGATT TCTATTTTCT
     TAGGGTGAGG TAGGTTAAGG AAGTCAGGGT TTCTGCTCAA GACAGGGAAG GGAGGTCGAA AGTGGAGCAC TCTTAGGGTG CTCAGTCTAA AGATAAAAGA

5601 AATATTGGGG AGATGGGCCC TACCGCCCGT CCCCCGTGCT GCATGGAACA TTCCATACCC TGTCCTGGGC CCTAGGTTCC AAACCTAATC CCAAACCCCA
     TTATAACCCC TCTACCCGGG ATGGCGGGCA GGGGGCACGA CGTACCTTGT AAGGTATGGG ACAGGACCCG GGATCCAAGG TTTGGATTAG GGTTTGGGGT

5701 CCCCCAGCTA TTTATCCCTT TCCTGGTTCC CAAAAAGCAC TTATATCTAT TATGTATAAA TAAATATATT ATATATGAGT GTGCGTGTGT GTGCGTGTGC
     GGGGGTCGAT AAATAGGGAA AGGACCAAGG GTTTTTCGTG AATATAGATA ATACATATTT ATTTATATAA TATATACTCA CACGCACACA CACGCACACG

5801 GTGCGTGCGT GCGTGCGTGC GAGCTTCCTT GTTTTCAAGT GTGCTGTGGA GTTCAAAATC GCTTCTGGGG ATTTGAGTCA GACTTTCTGG CTGTCCCTTT
     CACGCACGCA CGCACGCACG CTCGAAGGAA CAAAAGTTCA CACGACACCT CAAGTTTTAG CGAAGACCCC TAAACTCAGT CTGAAAGACC GACAGGGAAA

5901 TTGTCACTTT TTTGTTGTTG TCTCGGCTCC TCTGGCTGTT GGAGACAGTC CCGGCCTCTC CCTTTATCCT TTCTCAAGTC TGTCTCGCTC AGACCACTTC
     AACAGTGAAA AAACAACAAC AGAGCCGAGG AGACCGACAA CCTCTGTCAG GGCCGGAGAG GGAAATAGGA AAGAGTTCAG ACAGAGCGAG TCTGGTGAAG

6001 CAACATGTCT CCACTCTCAA TGACTCTGAT CTCCGGTCTG TCTGTTAATT CTGGATTTGT CGGGGACATG CAATTTTACT TCTGTAAGTA AGTGTGACTG
     GTTGTACAGA GGTGAGAGTT ACTGAGACTA GAGGCCAGAC AGACAATTAA GACCTAAACA GCCCCTGTAC GTTAAAATGA AGACATTCAT TCACACTGAC

6101 GGTGGTAGAT TTTTTACAAT CTATATCGTT GAGAATTCTG GGTGGAAATG TCTGATCAGG AGAAGGGCCT GCCACTGCCG ACCACAATTC ATTGACTCCA
     CCACCATCTA AAAAATGTTA GATATAGCAA CTCTTAAGAC CCACCTTTAC AGACTAGTCC TCTTCCCGGA CGGTGACGGC TGGTGTTAAG TAACTGAGGT

6201 TAGCCCTCAC CCAGGCTGTA TTTGTGATTT TTTTCATTTT GTTTTTTTGT ATTTTGCACC TGACCCCGGG GGTGCTGGGG CAGTCTATCA CTGGGCAGCT
     ATCGGGAGTG GGTCCGACAT AAACACTAAA AAAAGTAAAA CAAAAAAACA TAAAACGTGG ACTGGGGCCC CCACGACCCC GTCAGATAGT GACCCGTCGA

6301 CCCCTCCCCC CCTTGGTTCT GCACTGTCGC CAATAAAAAG CTTTTAAAAA ACTGTATCCT TCAGGTCAAA GTGTCTGTTT TCCCTGGACA TCTACTACAT
     GGGGAGGGGG GGAACCAAGA CGTGACAGCG GTTATTTTTC GAAAATTTTT TGACATAGGA AGTCCAGTTT CACAGACAAA AGGGACCTGT AGATGATGTA

6401 GGCTTCCTTT CAGAAAAACG GAGTTTGGAT TGCTAGGGAA GTCTTGCTGG CACTTAGTGG GACGCCTAAC GAATCAGAAC CTACAACGGG ACTAAAAGGA
     CCGAAGGAAA GTCTTTTTGC CTCAAACCTA ACGATCCCTT CAGAACGACC GTGAATCACC CTGCGGATTG CTTAGTCTTG GATGTTGCCC TGATTTTCCT

6501 AGTGGAGACT TGCTAGGTTT TCCCATGTTC CCAGGCTGGG CCACCTACTT GAAAAAATAA GGGGCGGAAA AGTGTAAGGT ACCAAATTTG GTGAAGGGTC
     TCACCTCTGA ACGATCCAAA AGGGTACAAG GGTCCGACCC GGTGGATGAA CTTTTTTATT CCCCGCCTTT TCACATTCCA TGGTTTAAAC CACTTCCCAG

6601 TGGGAGAATT TCATGATCGG AAAAGAATTT ATTCACCTTG GGTGTGCAAT GAACTTTCAG CAACAGTTAA GGGCAAGGGT GTAAAAGCTG GGCACAACTT
     ACCCTCTTAA AGTACTAGCC TTTTCTTAAA TAAGTGGAAC CCACACGTTA CTTGAAAGTC GTTGTCAATT CCCGTTCCCA CATTTTCGAC CCGTGTTGAA

6701 GTAAATCCTA GCATTTGAGA GGTGGAGGCA AGGGGATCAA CTGGTGGAGT TCAGTGTCAT GTGGATCGTA GATACCAAGC GCAAAGATCT GCTATGGGGA
     CATTTAGGAT CGTAAACTCT CCACCTCCGT TCCCCTAGTT GACCACCTCA AGTCACAGTA CACCTAGCAT CTATGGTTCG CGTTTCTAGA CGATACCCCT

6801 GAGGGCTTGG TACACCAGGG GAGCCAGAAG TTTCGTGGTG AGGGTAGTGG AGGGCAAGTG GAGAGTGAGA GTTAGCCTCA GGGAGATTCT ACAGGCAATG
     CTCCCGAACC ATGTGGTCCC CTCGGTCTTC AAAGCACCAC TCCCATCACC TCCCGTTCAC CTCTCACTCT CAATCGGAGT CCCTCTAAGA TGTCCGTTAC

6901 ATGCAGAGTT CAGACGCTCC CTTTGAAAGC ACTAGAGAGC CGCAGCAGGT TTTGAGCAGA GAAGGTTAGA GTTAGGTGGT CTCTTCTAGC CCATCCCAGG
     TACGTCTCAA GTCTGCGAGG GAAACTTTCG TGATCTCTCG GCGTCGTCCA AAACTCGTCT CTTCCAATCT CAATCCACCA GAGAAGATCG GGTAGGGTCC

7001 CTGAGGAGGA CGCTGAGGGT TTCAAGAAGG ATCGAGAATG GAAAGCAGAG GAGAAGAAGG ATCCAAGAGG CATGGAGGAG GCAGAACACA TTTCTCTTCT
     GACTCCTCCT GCGACTCCCA AAGTTCTTCC TAGCTCTTAC CTTTCGTCTC CTCTTCTTCC TAGGTTCTCC GTACCTCCTC CGTCTTGTGT AAAGAGAAGA

7101 TTAATAGCAA GCCTGGAAAG GATAACTTGC TGCAGGAGGA GATGCTCACC AGTCGGGTGG TCTAGGGGGT TCTTGGAAAA GAGAAGGCAT TTGCTCAAGC
     AATTATCGTT CGGACCTTTC CTATTGAACG ACGTCCTCCT CTACGAGTGG TCAGCCCACC AGATCCCCCA AGAACCTTTT CTCTTCCGTA AACGAGTTCG
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FIG. 4B-2

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7201  CTCGGTTCCC CCATTCTCGC TCTT[illegible]A GCTTGTCTTC CATTAAGTGT GTGTCTCAAG GCCACC[illegible] [illegible]CAGGACTCC TTGTGAGACG ACCTTCTATG
      GAGCCAAGGG GGTAAGAGCG AGAAGAC[illegible]GT CGAACAGAAG GTAATTCACA CACAGAGTTC CGGTGGGA[illegible]G AGTCCTGAGG AACACTCTGC TGGAAGATAC
7301  CTCGAGTTCA TTAAAAACAC AATTGCCTGG TGCCGTGCTC TCTCCACTGG CTCAGTTACC TCAAAAGACC AGGGCTAAAG GTGTGATCAC AACTCTATCC
      GAGCTCAAGT AATTTTTGTG TTAACGGACC ACGGCACGAG AGAGGTGACC GAGTCAATGG AGTTTTCTGG TCCCGATTTC CACACTAGTG TTGAGATAGG
7401  CCATTACTGC TCCAACGCAG AGACAGGACT GAGCCGGAGT GAACAAATGA ACAAAAATGA CTAATAATGC ATGCGTGATT AAATACATAA AAGAGCAGAT
      GGTAATGACG AGGTTGCGTC TCTGTCCTGA CTCGGCCTCA CTTGTTTACT TGTTTTTACT GATTATTACG TACGCACTAA TTTATGTATT TTCTCGTCTA
7501  GACTGGATGA GCAAATCGTT TAAGGAGAGA CAGCAAGATC CTAGAATTTT GGAGACTAAT TTAAATCCAT CTTTGAGATG CATTTGGTCG GAAATTCCTG
      CTGACCTACT CGTTTAGCAA ATTCCTCTCT GTCGTTCTAG GATCTTAAAA CCTCTGATTA AATTTAGGTA GAAACTCTAC GTAAACCAGC CTTTAAGGAC
7601  GGAGGAAAAA AAGTGTAAAT ATGAAGAGAG AATAAATGAG AATAGGGGTG GCTTCAGAGA GGTTAACTGC GCGCTGGTCG CTTTTGTACA AGAATGTGAA
      CCTCCTTTTT TTCACATTTA TACTTCTCTC TTATTTACTC TTATCCCCAC CGAAGTCTCT CCAATTGACG CGCGACCAGC GAAAACATGT TCTTACACTT
7701  TTGCAGGGAG CAAAATGGGA TAGATACTCC CGCCCGAAAG GTGGAATTGA ACCACTCTGT CGCTAAACAG CTACAGGTTT GAAGCCTGCA CCCCAGACCA
      AACGTCCCTC GTTTTACCCT ATCTATGAGG GCGGGCTTTC CACCTTAACT TGGTGAGACA GCGATTTGTC GATGTCCAAA CTTCGGACGT GGGGTCTGGT
7801  CTGAGGATCA TCCGGGCGAA AGGAGCTATT TTCAGTTAGT TATATAAAGG CGAGATACTA CTACTTTTTA CACTTATGGT CATTATTTGT GGTATACAGT
      GACTCCTAGT AGGCCCGCTT TCCTCGATAA AAGTCAATCA ATATATTTCC GCTCTATGAT GATGAAAAAT GTGAATACCA GTAATAAACA CCATATGTCA
7901  AGATAATTAA TTTCAATGGT TTCGAACATT TTTTTTCACT TTTTCTTGTG AACATGTGTT TCCTCAGTAA AGTGTTCCGT GAATGACTCT ACTAACTAAA
      TCTATTAATT AAAGTTACCA AAGCTTGTAA AAAAAAGTGA AAAAGAACAC TTGTACACAA AGGAGTCATT TCACAAGGCA CTTACTGAGA TGATTGATTT
8001  AAGTAAGTAG CTTCATTTGC ATAGCGCCTT GCATTTTGGG AAGCAGCGCC TAAAGTGCCT GTCTCCCTAA CTAAAAGCAG AATTTTTTGC AAAGTGAAAA
      TTCATTCATC GAAGTAAACG TATCGCGGAA CGTAAAACCC TTCGTCGCGG ATTTCACGGA CAGAGGGATT GATTTTCGTC TTAAAAAACG TTTCACTTTT
8101  GTCAGTTTTA TTTTTGTTTG TTTGTTTGCT TGTTTGTTTT TAATGGAAAA ACTTCTCACG CGGCCCATTC GTAGCAGAAT TCGAGATTTT CTGCAAGCGA
      CAGTCAAAAT AAAAACAAAC AAACAAACGA ACAAACAAAA ATTACCTTTT TGAAGAGTGC GCCGGGTAAG CATCGTCTTA AGCTCTAAAA GACGTTCGCT
8201  GAAGCAAGAC TTTCGTAGGG TCTGACGGCA CGCGGCCGCA GAGCGACACC TGCCGTTGCT TTATAGAACT GCAAGTATGT AGGGAATCTA CTGAGTCCCT
      CTTCGTTCTG AAAGCATCCC AGACTGCCGT GCGCCGGCGT CTCGCTGTGG ACGGCAACGA AATATCTTGA CGTTCATACA TCCCTTAGAT GACTCAGGGA
8301  AGGTGATGGA GTTGACAACC AACTCCCCTT GAGTTTAGAC GCTAAAAACC ATCCCTTTTT ATATTTATGT GATTAGCCCA GGGAAACTAA GGCTCAGACA
      TCCACTACCT CAACTGTTGG TTGAGGGGAA CTCAAATCTG CGATTTTTGG TAGGGAAAAA TATAAATACA CTAATCGGGT CCCTTTGATT CCGAGTCTGT
8401  TGGATAATAC CACAGCCGAG TTCTTGTAGC CCAACTCCCT AGGGGAAATG AAACCTACAG TTGTGGTTTT AATATGCTTG GCCCAGGGGC AGTGGCCCTA
      ACCTATTATG GTGTCGGCTC AAGAACATCG GGTTGAGGGA TCCCCTTTAC TTTGGATGTC AACACCAAAA TTATACGAAC CGGGTCCCCG TCACCGGGAT
8501  TTGGCAGGAG TGGCCTTATT AGCGGAGGTG TACCTTGTTA GAGAAGTGTG TCACTTGGAG GCGAGGTTTT GAGGTACGTA TGCTCAAGTC TGGCCAGTGT
      AACCGTCCTC ACCGGAATAA TCGCCTCCAC ATGGAACAAT CTCTTCACAC AGTGAACCTC CGCTCCAAAA CTCCATGCAT ACGAGTTCAG ACCGGTCACA
8601  GATCCTGGCT GTCTGCAGAA CGTGGTCTCC TTCTGGCTGC CTTCGGATCA AGGTGTAGAA CTCTCAGCTC CTTCTCCAGC ACCATGTCTG CCTGCTTAAT
      CTAGGACCGA CAGACGTCTT GCACCAGAGG AAGACCGACG GAAGCCTAGT TCCACATCTT GAGAGTCGAG GAAGAGGTCG TGGTACAGAC GGACGAATTA
8701  GCTTTGCTTC TTTCCATGAC GATAATGAAC TGTGCCTCTG AAACTGTAAG TCAGCCCCCC AGTTACATGT TTTCTTTTAT AAGAGTTGCA TATATATATG
      CGAAACGAAG AAAGGTACTG CTATTACTTG ACACGGAGAC TTTGACATTC AGTCGGGGGG TCAATGTACA AAAGAAAATA TTCTCAACGT ATATATATAC
8801  TATGTATATA TGTATGTATA TATGTATGTA TATATATATA TATATATAAA CAGGGTCTCA CTCTTTAGCT CTGGCTGGCC TGAAATTCAC TATGTAGCCC
      ATACATATAT ACATACATAT ATACATACAT ATATATATAT ATATATATTT GTCCCAGAGT GAGAAATCGA GACCGACCGG ACTTTAAGTG ATACATCGGG
8901  AGGATTGCCT GAACTTTGAA GCAATCTTCC TGCCTCAGCC TCCCAATGGT ATTACAGGCA TGAGTCACAA CAAGCCATTT AAATCTTATG ATGACTTATA
      TCCTAACGGA CTTGAAACTT CGTTAGAAGG ACGGAGTCGG AGGGTTACCA TAATGTCCGT ACTCAGTGTT GTTCGGTAAA TTTAGAATAC TACTGAATAT
9001  AGAAGACAGA AAATCAGAGT TCCTTTACCT AGTTCACAGA TCCCTACAAT CTAACCTCGT TCGCTCCATA AACAGCCCTA CCCCACCCTC CTGGAACTGC
      TCTTCTGTCT TTTAGTCTCA AGGAAATGGA TCAAGTGTCT AGGGATGTTA GATTGGAGCA AGCGAGGTAT TTGTCGGGAT GGGGTGGGAG GACCTTGACG
9101  TTTGAGGAAT GCTGCAGGCT CTCACAGGCA CACTCCTCCT TGGTTAATCT CTTCAGCCTG GTTGCCTTCC CCCCCCATGT CCATGTGGCC CAAAGCCTCT
      AAACTCCTTA CGACGTCCGA GAGTGTCCGT GTGAGGAGGA ACCAATTAGA GAAGTCGGAC CAACGGAAGG GGGGGGTACA GGTACACCGG GTTTCGGAGA
9201  CATCCTGTTC TCAAATACCA CTAGCTAGTA AGGCTCCCCG ACCTGACCCG GTTTAAATAT TAGAAAAGGG TCACTTTCTC CCTGCCACAG ACAACCAAAC
      GTAGGACAAG AGTTTATGGT GATCGATCAT TCCGAGGGGC TGGACTGGGC CAAATTTATA ATCTTTTCCC AGTGAAAGAG GGACGGTGTC TGTTGGTTTG
9301  CACCATATGC TTGTCACTTA CTACCTGACT ATGAAGGTTA ATAGATGTCT TCACAACCTT TCTCTGAGCC TCAGTTTCCC CACCTGCATA ATGCATCTGA
      GTGGTATACG AACAGTGAAT GATGGACTGA TACTTCCAAT TATCTACAGA AGTGTTGGAA AGAGACTCGG AGTCAAAGGG GTGGACGTAT TACGTAGACT
9401  GACACAGAAT TCCCTAGAGC TGTGGTTCTC CTCATTCCTA GTGCTGGGAC CCTTTAATAC ATTTCCTCAT GTTGTGGTGA CCCCACCACC ACCATAAAAT
      CTGTGTCTTA AGGGATCTCG ACACCAAGAG GAGTAAGGAT CACGACCCTG GGAAATTATG TAAAGGAGTA CAACACCACT GGGGTGGTGG TGGTATTTTA
9501  TATTTCCATT GATACTTCAT AACTGTAATT TTTTCTATTG TTATGAATAG TAATGTAAGC ATTTGTGTTT CCCAGTGATC TTAGATGACC CTGTGGAAGA
      ATAAAGGTAA CTATGAAGTA TTGACATTAA AAAAGATAAC AATACTTATC ATTACATTCG TAAACACAAA GGGTCACTAG AATCTACTGG GACACCTTCT
9601  GTCATTCCAC CCCAAAGGGG TCCCCACCAC AAGTTAAGAA TTCCTGCCAT AGAGGAATCA CAGGGACCAT GGATTAACAC TTGGGTCGAC TTTTGGGCTG
      CAGTAAGGTG GGGTTTCCCC AGGGGTGGTG TTCAATTCTT AAGGACGGTA TCTCCTTAGT GTCCCTGGTA CCTAATTGTG AACCCAGCTG AAAACCCGAC
9701  CCTTCTGGGA GGCGCTAGAG CTAATGACAG CTACATCAAT TTCTGAAATT TTGTGTGTGT GTGTGTGTGT GTGTGTGTGT GTGTGTGTGT GCCCTGAGTC
      GGAAGACCCT CCGCGATCTC GATTACTGTC GATGTAGTTA AAGACTTTAA AACACACACA CACACACACA CACACACACA CACACACACA CGGGACTCAG
9801  GGGTGCTGAG ATAGGCCAGT GGCTTTAGTG TTCCTGGACC CATTACTCAC CAGAACTCTC CCCTCACCTG ATTCTTTGAT GTGAACACTA TGTCTTCATA
      CCCACGACTC TATCCGGTCA CCGAAATCAC AAGGACCTGG GTAATGAGTG GTCTTGAGAG GGGAGTGGAC TAAGAAACTA CACTTGTGAT ACAGAAGTAT
9901  GTGGCGGTGG CAATAGCAGC AACAGTGAAC TAAATTTTAA AAGTAGAACT CAGCTGGAGA TACAAATATT GCAGTTTTGA AGTTGGGGTG GATTGTCTAA
      CACCGCCACC GTTATCGTCG TTGTCACTTG ATTTAAAATT TTCATCTTGA GTCGACCTCT ATGTTTATAA CGTCAAAACT TCAACCCCAC CTAACAGATT
10001 TAACTTAATA ACATAACCCA GAAGAGAGGC CCCTTGGTCT TGCAAACTTT ATATGCCTCA GTACAGGGGA ACGCCAGGGC CAAGAAGTGG GAGTGGGTGG
      ATTGAATTAT TGTATTGGGT CTTCTCTCCG GGGAACCAGA ACGTTTGAAA TATACGGAGT CATGTCCCCT TGCGGTCCCG GTTCTTCACC CTCACCCACC
10101 GTAGGGGAGC AGGGTGGGGG GAGGGTATAG GGGACTTTCC GGATAGCATT TGAAATGTAA ATGAAGAAAA TATCTAATAA AAATTTGAAA AAAAATGTTA
      CATCCCCTCG TCCCACCCCC CTCCCATATC CCCTGAAAGG CCTATCGTAA ACTTTACATT TACTTCTTTT ATAGATTATT TTTAAACTTT TTTTTACAAT
10201 CCCCAGTTTG GCCTGGATCT CACTACCTCA ACCAGACTGG CATGTGACTC TGCTGAGATC TGCCTACTTC TGCCTCCTGG GTGCAGAAGA CAATTTTTGG
      GGGGTCAAAC CGGACCTAGA GTGATGGAGT TGGTCTGACC GTACACTGAG ACGACTCTAG ACGGATGAAG ACGGAGGACC CACGTCTTCT GTTAAAAACC
10301 AAGTTAGTTC TCTTCTTCCA TCTTGTGGAT TCCAGGGATT GAACTCGGGT CATCAGGCTT GGCTGCAAGT GACTTACTTA GGTGTCTCCC AGACCCTCTC
      TTCAATCAAG AGAAGAAGGT AGAACACCTA AGGTCCCTAA CTTGAGCCCA GTAGTCCGAA CCGACGTTCA CTGAATGAAT CCACAGAGGG TCTGGGAGAG
10401 GGTTTGATTA GTTAGATGCT GCACTTCATG CCTGACTTTC GCACTATGTA GATAGAGCAA TGTCTATAAC ATCTCCTACA ATGATATGTA TATCAAGAGC
      CCAAACTAAT CAATCTACGA CGTGAAGTAC GGACTGAAAG CGTGATACAT CTATCTCGTT ACAGATATTG TAGAGGATGT TACTATACAT ATAGTTCTCG
10501 CAAGTGATGA GATGGCTCAG TGGGTAAGAG CACAGACTGC TCTTCCAAAG GTCCCGAGTT CAAATCCCAG CAATCACATA GTGGCTTCCA TTCCCTCTTA
      GTTCACTACT CTACCGAGTC ACCCATTCTC GTGTCTGACG AGAAGGTTTC CAGGGCTCAA GTTTAGGGTC GTTAGTGTAT CACCGAAGGT AAGGGAGAAT
10601 TGGAATGTCT GAAGACTGCT ACAGTGTACT TACATATAAT AAATAAATAA ATCTTAAAAA AAAAAAACCC AGCCGGGCGT GGTGGCGCAC GCCTTTAATC
      ACCTTACAGA CTTCTGACGA TGTCACATGA ATGTATATTA TTTATTTATT TAGAATTTTT TTTTTTTGGG TCGGCCCGCA CCACCGCGTG CGGAAATTAG
10701 CCAGCACTTG GGAGGCAGAG GCAGGCGGAT TCCTGAGTTC GACGCCAGCC TGGTCTACAG AGTGAGTTCC ACGACAGCCA GAACTACACA GAGAAACCCT
      GGTCGTGAAC CCTCCGTCTC CGTCCGCCTA AGGACTCAAG CTGCGGTCGG ACCAGATGTC TCACTCAAGG TGCTGTCGGT CTTGATGTGT CTCTTTGGGA
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FIG. 4B-3

[redacted]

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10801 GTCTCGAAAA AAAAAAGAGA GAGAG[illegible]G TGAGAGCGCA ATAATCTTAA CATTTCTGTG GTTGTC[illegible] [illegible]TGTAGTCTA TTCTGATAAG CAATGCTGGC
      CAGAGCTTTT TTTTTTCTCT CTCTCCCTTC ACTCTCGCGT TATTAGAATT GTAAAGACAC CAACAGAAAC GACATCAGAT AAGACTATTC GTTACGACCG

10901 TTGCTCCCAA GGTAGGAAGT AACATTTCTT TATAAAAGGT ATTTGCTCTG CTTTATTTTT CTGTTTTATT TATGGTGCTG AGGATGGAAC CCAGGACCCT
      AACGAGGGTT CCATCCTTCA TTGTAAAGAA ATATTTTCCA TAAACGAGAC GAAATAAAAA GACAAAATAA ATACCACGAC TCCTACCTTG GGTCCTGGGA

11001 TGGCAAGCAA GGCTAGCTGT TTACCACTGA GCCATACTCC AGCCTTGCAC TGGGGGATTC TAGGCAAGGG TTCTACCACT GAGCCACACT CCCCACCCCC
      ACCGTTCGTT CCGATCGACA AATGGTGACT CGGTATGAGG TCGGAACGTG ACCCCCTAAG ATCCGTTCCC AAGATGGTGA CTCGGTGTGA GGGGTGGGGG

11101 ATCCCTCTCT GGAAGATTCT AGGCAGTTCC ATACCTAGCC TTTGATCTTT TAAGACGGTC TTACTAGAGC TCAGTT
      TAGGGAGAGA CCTTCTAAGA TCCGTCAAGG TATGGATCGG AAACTAGAAA ATTCTGCCAG AATGATCTCG AGTCAA
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FIG. 4B-4

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        10        20        30        40        50        60        70        80        90       100
AAGCTTGCAGGGAGGTAGGAGGCAGCCTGTGGCGTTGATTCAATGCACCTGGCCTTATCCTCGGATGAGATCGGTCACCAGTCAAAAACTGTGAGCTTGA
TTCGAACGTCCCTCCATCCTCCGTCGGACACCGCAACTAAGTTACGTGGACCGGAATAGGAGCCTACTCTAGCCAGTGGTCAGTTTTTGACACTCGAACT

       110       120       130       140       150       160       170       180       190       200
AGGTCTTGGGTGCTTAACATCTATTTTTACAAATCTTATTTAGCAACTTAGAACTGTGAAATATTGGAAAGCTACTTAAACCTTCTAAACTCCCTCCTCC
TCCAGAACCCACGAATTGTAGATAAAAATGTTTAGAATAAATCGTTGAATCTTGACACTTTATAACCTTTCGATGAATTTGGAAGATTTGAGGGAGGAGG

       210       220       230       240       250       260       270       280       290       300
ACACTATGAGAATGTTACATTTTCTATTCAGTTATTTTTGAGCAGTAAACAGATGAATCAAGGAATATGCCCATCACATCAAGAGTGCTCCTAAATGGAC
TGTGATACTCTTACAATGTAAAAGATAAGTCAATAAAAACTCGTCATTTGTCTACTTAGTTCCTTATACGGGTAGTGTAGTTCTCACGAGGATTTACCTG

       310       320       330       340       350       360       370       380       390       400
TTGCTTGTTATTCATTTACAGTGTGGCCCCTTGACTTTCATCGGCACTCCTAGCAGAAAACAAAATCCGCCAGATGGAGCTGGAGAGATGGCTCAGCTGT
AACGAACAATAAGTAAATGTCACACCGGGGAACTGAAAGTAGCCGTGAGGATCGTCTTTTGTTTTAGGCGGTCTACCTCGACCTCTCTACCGAGTCGACA

       410       420       430       440       450       460       470       480       490       500
TAAGAATACTTATCCCTACACAGGCCCTGGAGCCAGTTCCCAGCACCCACACGGTGGCTCACAACCATCTGTAACTCCAGTTCTAGGAGACCCGACTCCC
ATTCTTATGAATAGGGATGTGTCCGGGACCTCGGTCAAGGGTCGTGGGTGTGCCACCGAGTGTTGGTAGACATTGAGGTCAAGATCCTCTGGGCTGAGGG

       510       520       530       540       550       560       570       580       590       600
TCTTCTGTCTGAAAACACCAGGCACGCGTGCGGCTACATACAAACATGAAAGCAAAATACACACATTACATAAATAAATCTTAAAAAATGATTCGGGGTG
AGAAGACAGACTTTTGTGGTCCGTGCGCACGCCGATGTATGTTTGTACTTTCGTTTTATGTGTGTAATGTATTTATTTAGAATTTTTTACTAAGCCCCAC

       610       620       630       640       650       660       670       680       690       700
GGGGAAGGAAAAAAAAGGATGTTAGAAAATCGATGTAACTGTTTTTTCCTTTTGCACAGATCTAAGTAGGGAAGGAGAACATTCTCTTACCATCGAGAAT
CCCCTTCCTTTTTTTTCCTACAATCTTTTAGCTACATTGACAAAAAAGGAAAACGTGTCTAGATTCATCCCTTCCTCTTGTAAGAGAATGGTAGCTCTTA

       710       720       730       740       750       760       770       780       790       800
AATTGTTTTCATTGCCCCCAAGTCTGCTAATAGAGCTTGCTACCTTCATGGCTGTCGTAAGGATGAGGCAAAGATGGACTTCAGCTTTCAGACTGTGTCT
TTAACAAAAGTAACGGGGGTTCAGACGATTATCTCGAACGATGGAAGTACCGACAGCATTCCTACTCCGTTTCTACCTGAAGTCGAAAGTCTGACACAGA

       810       820       830       840       850       860       870       880       890       900
GCTCAAATGTTGGCTACTCCTGTTTTCTGACCCCCTTCTCTGGTGCAATGTGGACTTTCAATTAATTTCCCTGCATCTTTTACATATTTGATTTAAAAAA
CGAGTTTACAACCGATGAGGACAAAAGACTGGGGGAAGAGACCACGTTACACCTGAAAGTTAATTAAAGGGACGTAGAAAATGTATAAACTAAATTTTTT

       910       920       930       940       950       960       970       980       990      1000
TATTTTATTTTATGTAATTGTATGTATATGCATGTCAATAAGCATATGTGTGTGTGTTTCCATGGAAACCAAGGCAACAGATTCTCCAGAGCTGTAGAAA
ATAAAATAAAATACATTAACATACATATACGTACAGTTATTCGTATACACACACACAAAGGTACCTTTGGTTCCGTTGTCTAAGAGGTCTCGACATCTTT

      1010      1020      1030      1040      1050      1060      1070      1080      1090      1100
TGGGCTGTGAGACGCCCACTGTGGGTGCTCGGAACCAAACTCGGGTCCTGTGGAAAGACAGCGAGCACCCATAATGCAGAGGTATCTCTCAGACTCTACT
ACCCGACACTCTGCGGGTGACACCCACGAGCCTTGGTTTGAGCCCAGGACACCTTTCTGTCGCTCGTGGGTATTACGTCTCCATAGAGAGTCTGAGATGA

      1110      1120      1130      1140      1150      1160      1170      1180      1190      1200
TTAAAATTTCAATTTATCTTTTTTTTTTTTAAAGTTCCAAGTAACTATAGGAAAGTACATGGGTATATAGATCCCCAGTACCAAGATTCTTCCTTTGCAG
AATTTTAAAGTTAAATAGAAAAAAAAAAAATTTCAAGGTTCATTGATATCCTTTCATGTACCCATATATCTAGGGGTCATGGTTCTAAGAAGGAAACGTC

      1210      1220      1230      1240      1250      1260      1270      1280      1290      1300
GTAGCACAACTTGGTCTGCTTCACATAAAGAATGGAAAGTCATTAAAACACTCATCACACTGTAAAGTAGAATTGAACTCTGACAGAACAAGCGAAGTGA
CATCGTGTTGAACCAGACGAAGTGTATTTCTTACCTTTCAGTAATTTTGTGAGTAGTGTGACATTTCATCTTAACTTGAGACTGTCTTGTTCGCTTCACT

      1310      1320      1330      1340      1350      1360      1370      1380      1390      1400
GTCTGACTTCCAGGTAACTGAGCCTTCTTTTCCTCCTAAAGACACAAGCCATACACAGAGTAAAATAAACTTGGGCATGGTGAGAAGGAAACAACGCAGG
CAGACTGAAGGTCCATTGACTCGGAAGAAAAGGAGGATTTCTGTGTTCGGTATGTGTCTCATTTTATTTGAACCCGTACCACTCTTCCTTTGTTGCGTCC

      1410      1420      1430      1440      1450      1460      1470      1480      1490      1500
AGGGCTAGCCAAGTCTGAGAGTCGTGAGTGTGCTCGGTTTATAAACGGAGCCCACCTTGCCAGCGAGGTAGTCACATGCTCTGCTAAACAGAAACTTAAG
TCCCGATCGGTTCAGACTCTCAGCACTCACACGAGCCAAATATTTGCCTCGGGTGGAACGGTCGCTCCATCAGTGTACGAGACGATTTGTCTTTGAATTC

      1510      1520      1530      1540      1550      1560      1570      1580      1590      1600
AAAACACTTACACGAAGCAAACATGGGGAAGTGCCATGCAAGCATGTGACTGACTGGTGGCAATGACCGAAACCACAGCAGCCACTAGAAAAGGAAGGGT
TTTTGTGAATGTGCTTCGTTTGTACCCCTTCACGGTACGTTCGTACACTGACTGACCACCGTTACTGGCTTTGGTGTCGTCGGTGATCTTTTCCTTCCCA

      1610      1620      1630      1640      1650      1660      1670      1680      1690      1700
AGTGCGCCACACTGTAGTTGTGAAAATGAACTTATTCATTTATTTTGAAAAACGTGTAAGAAGCAAAGATGTCTTCTTTCCCACCTACCTTTGCGGCAGG
TCACGCGGTGTGACATCAACACTTTTACTTGAATAAGTAAATAAAACTTTTTGCACATTCTTCGTTTCTACAGAAGAAAGGGTGGATGGAAACGCCGTCC

      1710      1720      1730      1740      1750      1760      1770      1780      1790      1800
CGAGCACTTCCTGGAATTTATAAAGTGCGATCTTTCTGGGGACTTCTCATAACATTTCCTACTGCTCATCTATGTCTGTGTCAAATAGAGAATGCTCTTG
GCTCGTGAAGGACCTTAAATATTTCACGCTAGAAAGACCCCTGAAGAGTATTGTAAAGGATGACGAGTAGATACAGACACAGTTTATCTCTTACGAGAAC

      1810      1820      1830      1840      1850      1860      1870      1880      1890      1900
AACAAGTGTGTGTGTGTGTGTGTGTGCGCGCGCACGCGCACTCACTCCTGCTCTGTTGAGGTCCAGTTTTGATGGTCCCGCCAGAGGTATATTTGAGTAT
TTGTTCACACACACACACACACACACGCGCGCGTGCGCGTGAGTGAGGACGAGACAACTCCAGGTCAAAACTACCAGGGCGGTCTCCATATAAACTCATA

      1910      1920      1930      1940      1950      1960      1970      1980      1990      2000
CATTTCTCAAGAGCTTCAGCTGGGAGACACTGCCTCTTACTGGCCTGAAGGTCACTAGCTGATTCATCTCCGTTTGGGCTGGCGCGCCTTGGGGATCCTC
GTAAAGAGTTCTCGAAGTCGACCCTCTGTGACGGAGAATGACCGGACTTCCAGTGATCGACTAAGTAGAGGCAAACCCGACCGCGCGGAACCCCTAGGAG

      2010      2020      2030      2040      2050      2060      2070      2080      2090      2100
CTATCTCTCCTTCCCCAGTGCTGGGATAACAAGGTTGGCACCACATGAGCCTTTTAAAATGTGAGTTTGGAAGCTCAAACGCAGGTTTTCATGCTTGCAC
GATAGAGAGGAAGGGGTCACGACCCTATTGTTCCAACCGTGGTGTACTCGGAAAATTTTACACTCAAACCTTCGAGTTTGCGTCCAAAAGTACGAACGTG

      2110      2120      2130      2140      2150      2160      2170      2180      2190      2200
TGAAACTTCACAAGCTGAACCGTCTCCCTCTCCTTCCCTCTCTTTTTTCCTTTTCTTCTTCCTTTTTAAAACACATCTTGTCTTTAAAAAAAAAAAAAGG
ACTTTGAAGTGTTCGACTTGGCAGAGGGAGAGGAAGGGAGAGAAAAAAGGAAAAGAAGAAGGAAAAATTTTGTGTAGAACAGAAATTTTTTTTTTTTTCC
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FIG. 5A

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       2210      2220      [illegible]230     2240      2250      2260      227[illegible]      2280      2290      2300
CCCAAAACAAGTGTAAAGTATTTCCCTATGTGTGGAGGGAGGGAGTATAGGAGGCTGATTTCACTGAGATCCTGTTAAATTTGGGTGCCATAGCCAAT
GGGTTTTGTTCACATTTCATAAAGGGATACACACACCTCCCTCCCTCATATCCTCCGACTAAAGTGACTCTAGGACAATTTAAACCCACGGTATCGGTTA

       2310      2320      2330      2340      2350      2360      2370      2380      2390      2400
CAAAGACGCATCGTTTCCTCTAAGAATTCTAAATGGGGCGATTACCACGGGCCTGCAGGTTCTGGTTTGTATTAGAGGAGACACTGTCTTCTTAAGTAAA
GTTTCTGCGTAGCAAAGGAGATTCTTAAGATTTACCCCGCTAATGGTGCCCGGACGTCCAAGACCAAACATAATCTCCTCTGTGACAGAAGAATTCATTT

       2410      2420      2430      2440      2450      2460      2470      2480      2490      2500
ACATAGAAGGGGAAGTGTCCAGAATTGTAAATAAGGCTTCGAGAGAAGCCTTGTCTGGCCACCGGGATGGAGAAGACCTACCTTCGCCTATCCAGGATCC
TGTATCTTCCCCTTCACAGGTCTTAACATTTATTCCGAAGCTCTCTTCGGAACAGACCGGTGGCCCTACCTCTTCTGGATGGAAGCGGATAGGTCCTAGG

       2510      2520      2530      2540      2550      2560      2570      2580      2590      2600
ATCGTCCCTCCCTCTACCCAGATCTGACAGCCCTCCTTGGCTCTTTTGCTGAGGTTTGTTTGAGTTTGTTTTACTCTCTGCAAGAGAAGTTTCCTTAAAC
TAGCAGGGAGGGAGATGGGTCTAGACTGTCGGGAGGAACCGAGAAAACGACTCCAAACAAACTCAAACAAAATGAGAGACGTTCTCTTCAAAGGAATTTG

       2610      2620      2630      2640      2650      2660      2670      2680      2690      2700
ATTCTACCCTGTTCACAAGTAAATACACCTCTTAGCTAAGAGGCCACACACCCAGGGGAACACCGATAAAAAGAACAAGCCAGAACCTTCAGAACGCTGT
TAAGATGGGACAAGTGTTCATTTATGTGGAGAATCGATTCTCCGGTGTGTGGGTCCCCTTGTGGCTATTTTTCTTGTTCGGTCTTGGAAGTCTTGCGACA

       2710      2720      2730      2740      2750      2760      2770      2780      2790      2800
CGATAGGTACACCAAGCAGCCTTCATACGGAGTTTTCATTCGTGAGGAGCTGAATATACAACAAAGCTAAATGTGAGCAGACCAGGCATGCCTCTGCTAA
GCTATCCATGTGGTTCGTCGGAAGTATGCCTCAAAAGTAAGCACTCCTCGACTTATATGTTGTTTCGATTTACACTCGTCTGGTCCGTACGGAGACGATT

       2810      2820      2830      2840      2850      2860      2870      2880      2890      2900
ATGAGGATGCCCACACCAAACATGCCCAAGATCTTCAAGTATAATTTTATTATATAGATTCGCTATGTGTTGACATGTTTTTATAGTGAACCTGGATTTT
TACTCCTACGGGTGTGGTTTGTACGGGTTCTAGAAGTTCATATTAAAATAATATATCTAAGCGATACACAACTGTACAAAAATATCACTTGGACCTAAAA

       2910      2920      2930      2940      2950      2960      2970      2980      2990      3000
ACAAACCCTCCTGGTTTGCCACCTGCTTCTGGCACCATACTTGAGGCTTAGGCACGTGATAAAGGAGCATGCCTGTTTCCCCCCTTATTTTTTTTAAAGA
TGTTTGGGAGGACCAAACGGTGGACGAAGACCGTGGTATGAACTCCGAATCCGTGCACTATTTCCTCGTACGGACAAAGGGGGGAATAAAAAAAATTTCT

       3010      3020      3030      3040      3050      3060      3070      3080      3090      3100
AAAGCACCATGTTACATCATTAATCATGCATATCAGTGTAGTTTAGATCCGATGTAGAGACAATAATCTTATCTCTTTGTCTGGCTGAAAGACTGTCCTT
TTTCGTGGTACAATGTAGTAATTAGTACGTATAGTCACATCAAATCTAGGCTACATCTCTGTTATTAGAATAGAGAAACAGACCGACTTTCTGACAGGAA

       3110      3120      3130      3140      3150      3160      3170      3180      3190      3200
TAAACTATCATTCTAAATGCATTTGGTTTTTGCCAGGAGTAAAACATGTCACAAGATATTTGTTGTCATTTCCCAGGCGTGGAAGGAAAGGAATGGAAAG
ATTTGATAGTAAGATTTACGTAAACCAAAAACGGTCCTCATTTTGTACAGTGTTCTATAAACAACAGTAAAGGGTCCGCACCTTCCTTTCCTTACCTTTC

       3210      3220      3230      3240      3250      3260      3270      3280      3290      3300
AAAACGAGGGGTGAAGGCTGCTGTTCCTCTCTAGTCGCTACTTGAAGTCTACATAGCTGGGGGGGGGGGGGGACTGTTCACATGGACCGGTTTCCTCT
TTTTGCTCCCCACTTCCGACGACAAGGAGAGATCAGCGATGAACTTCAGATGTATCGACCCCCCCCCCCCCCCTGACAAGTGTACCCTGGCCAAAGGAGA

       3310      3320      3330      3340      3350      3360      3370      3380      3390      3400
TTGTTCCTACACTGGCGCCTCTGGCAAGAAACTCTCCCTTCTCTTCCCCCCAAGCATATCTTGGCTGAAAGGTCAGCTCTGAAAAGGGGCCTGGCCAAAG
AACAAGGATGTGACCGCGGAGACCGTTCTTTGAGAGGGAAGAGAAGGGGGGTTCGTATAGAACCGACTTTCCAGTCGAGACTTTTCCCCGGACCGGTTTC

       3410      3420      3430      3440      3450      3460      3470      3480      3490      3500
TTACTGTAGGGGACCGTGGTCATGGAACTGGGTAGACAAAAGCACTCTAGCAGCCACTGGAGAAGGACCGGGGGCTCTTCTCTGTGCATTTGCCCTGGAG
AATGACATCCCCTGGCACCAGTACCTTGACCCATCTGTTTTCGTGAGATCGTCGGTGACCTCTTCCTGGCCCCCGAGAAGAGACACGTAAACGGGACCTC

       3510      3520      3530      3540      3550      3560      3570      3580      3590      3600
CCCTGACCACCGCCAGCTCCCTGCATCTCCTTGCTATGGGTTTTCTGGACCGAGCCAGGCAGGAGTTCACAACCGAAATGTCTTCTAGGGCTAATCAGGT
GGGACTGGTGGCGGTCGAGGGACGTAGAGGAACGATACCCAAAAGACCTGGCTCGGTCCGTCCTCAAGTGTTGGCTTTACAGAAGATCCCGATTAGTCCA

       3610      3620      3630      3640      3650      3660      3670      3680      3690      3700
AACTTCGGACGATTTAAAGTTGCCAGATGGACGAGAAAACAGTAGAGGCGTTGGCAACCTGGATAAGCGCCTATCTTCTAATTAAAACATTCAGACGGGG
TTGAAGCCTGCTAAATTTCAACGGTCTACCTGCTCTTTTGTCATCTCCGCAACCGTTGGACCTATTCGCGGATAGAAGATTAATTTTGTAAGTCTGCCCC

       3710      3720      3730      3740      3750      3760      3770      3780      3790      3800
CGGGGGATG-CGGTGGCCAAAGCACCATAAAACAAAACTTCCAAGTACTGACCAACTCACTGCAAGTTTGTGCCCCGAGTACATCTAGGTTCAGGGGTCT
GCCCCCTAC-GCCACCGGTTTCGTGGTATTTTGTTTTGAAGGTTCATGACTGGTTGAGTGACGTTCAAACACGGGGCTCATGTAGATCCAAGTCCCCAGA

       3810      3820      3830      3840      3850      3860      3870      3880      3890      3900
TGTCTTCATGCTCCCAACTGCGGGCGGATTTTTGGTCCCTTGGGACTTTCAGTGCAGCGGCGAAGAGAGTTCTGCACTTGCAGGCTCCTAATGAGGGCGC
ACAGAAGTACGAGGGTTGACGCCCGCCTAAAAACCAGGGAACCCTGAAAGTCACGTCGCCGCTTCTCTCAAGACGTGAACGTCCGAGGATTACTCCCGCG

       3910      3920      3930      3940      3950      3960      3970      3980      3990      4000
AGTGGGCCTCGTGTTTCTGGTGATGCTTCCCAGGTTGCTGGGGGCAGCAAGTGTCTCAGAGCCCATTACTGGCTACATTTTACTTCCACCAGAAACCGAG
TCACCCGGAGCACAAAGACCACTACGAAGGGTCCAACGACCCCCGTCGTTCACAGAGTCTCGGGTAATGACCGATGTAAAATGAAGGTGGTCTTTGGCTC

       4010      4020      4030      4040      4050      4060      4070      4080      4090      4100
CTGCGTCCAGATTTGCTCTCAGATGCGACTTGCCGCCCGGCACAGTTCCGGGGTAGTGGGGGAGTGGGCGTGGAAACCGGGAAACCCAAACCTGGTATC
GACGCAGGTCTAAACGAGAGTCTACGCTGAACGGCGGGCCGTGTCAAGGCCCCATCACCCCCTCACCCGCACCCTTTGGCCCTTTGGGTTTGGACCATAG

       4110      4120      4130      4140      4150      4160      4170      4180      4190      4200
CAGTGGGGGGCGTGGCCGGACGCAGGGAGTCCCCACCCCTCCCGGTAATGACCCCGCCCCCATTCGCTAGTGTGTAGCCGGCGCTCTCTTTCTGCCCTGA
GTCACCCCCCGCACCGGCCTGCGTCCCTCAGGGGTGGGGAGGGCCATTACTGGGGCGGGGGTAAGCGATCACACATCGGCCGCGAGAGAAAGACGGGACT

       4210      4220      4230      4240      4250      4260      4270      4280      4290      4300
GTCCTCAGGACCCCAAGAGAGTAAGCTGTGTTTCCTTAGATCGCGCGGACCGCTACCCGGCAGGACTGAAAGCCCAGACTGTGTCCCGCAGCCGGGATAA
CAGGAGTCCTGGGGTTCTCTCATTCGACACAAAGGAATCTAGCGCGCCTGGCGATGGGCCGTCCTGACTTTCGGGTCTGACACAGGGCGTCGGCCCTATT

       4310      4320      4330      4340      4350      4360      4370      4380      4390      4400
CCTGGCTGACCCGATTCCGCGGACACCGCTGCAGCCGCGGCTGGAGCCAGGGCGCCGGTGCCCCGCGCTCTCCCCGGTCTTGCGCTGCGGGGGCGCATAC
GGACCGACTGGGCTAAGGCGCCTGTGGCGACGTCGGCGCCGACCTCGGTCCCGCGGCCACGGGGCGCGAGAGGGGCCAGAACGCGACGCCCCCGCGTATG
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FIG. 5B

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    4410      4420      [illegible]0      4440      4450      4460      4470      4480
CGCCTCTGTGACTTCTTTGCGGGCCAGGGACGGAGAAGGAGTCTGTGCCTGAGAACTGGGCTCTGTGCCCAG[illegible]CGAGGTGCAGATG
GCGGAGACACTGAAGAAACGCCCGGTCCCTGCCTCTTCCTCAGACACGGACTCTTGACCCGAGACACGGGTCGCGCTCCACGTCTAC
```

FIG.5C

VEGF	**VEGFR2**	**Tie2**
Screening primers	**Screening primers**	**Screening primers**
Primers: VF1-VR1A Product size: 0.69Kb	Primers: KF1-KR1 Product size: 0.45Kb	Primers: TF3-TR1 Product size: 0.45Kb
PCR program	**PCR program**	**PCR program**
Hot start	Hot start	Hot start
94°C 40 sec 65°C 1 min 30 sec 72°C 1 min 30 sec	94°C 40 sec 58°C 1 min 30 sec 72°C 1 min 30 sec	94°C 40 sec 58°C 1 min 30 sec 72°C 1 min 30 sec
40 cycles	40 cycles	40 cycles
Confirmation primers	**Confirmation primers**	**Confirmation primers**
Primers: VF2-VR2 Product size: 0.98Kb	Primers: KF2-KR2 Product size: 0.58Kb	Primers: TF2-TR1 Product size: 0.47Kb
PCR program	**PCR program**	**PCR program**
Hot start	Hot start	Hot start
94°C 40 sec 65°C 1 min 30 sec 72°C 1 min 30 sec	94°C 40 sec 65°C 1 min 30 sec 72°C 1 min 30 sec	94°C 40 sec 58°C 1 min 30 sec 72°C 1 min 30 sec
40 cycles	40 cycles	40 cycles

FIG. 6

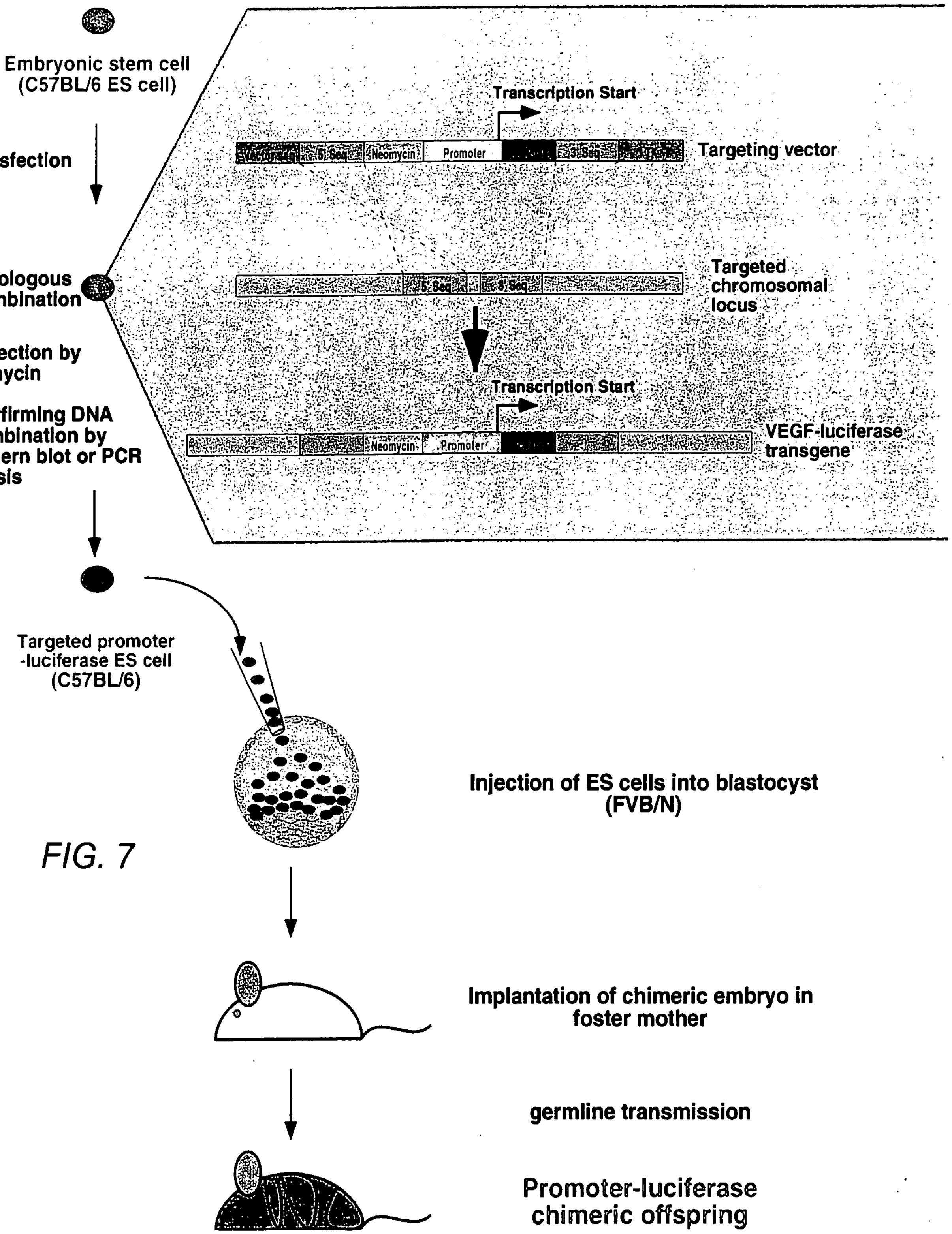
Embryonic stem cell
(C57BL/6 ES cell)
Transfection
Transcription Start
Vector seq
5' Seq
Neomycin
Promoter
3' Seq
TK
Targeting vector
Homologous recombination
Targeted chromosomal locus
5' Seq
3' Seq
1. Selection by neomycin
2. Corfirming DNA recombination by Southern blot or PCR analysis
Transcription Start
Neomycin
Promoter
VEGF-luciferase transgene
Targeted promoter -luciferase ES cell (C57BL/6)
Injection of ES cells into blastocyst (FVB/N)
Implantation of chimeric embryo in foster mother
germline transmission
Promoter-luciferase chimeric offspring

FIG. 7

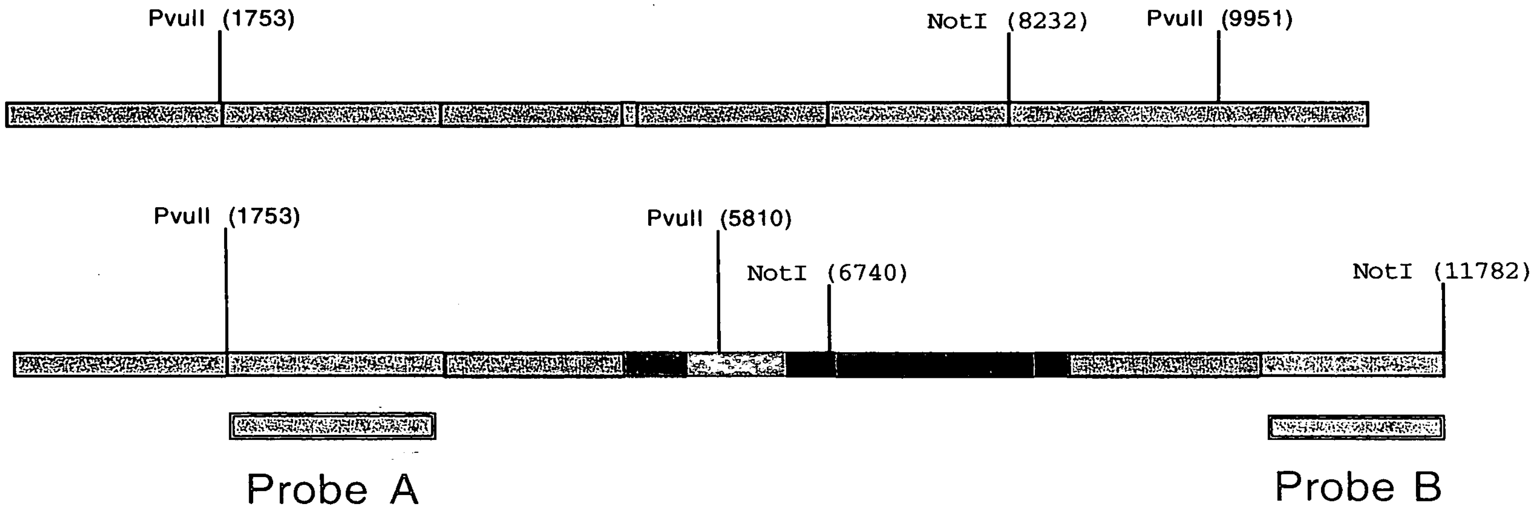
PvuII (1753)
NotI (8232)
PvuII (9951)
PvuII (1753)
PvuII (5810)
NotI (6740)
NotI (11782)
Probe A
Probe B

FIG. 8

Generation of Targeted Transgenic Mice

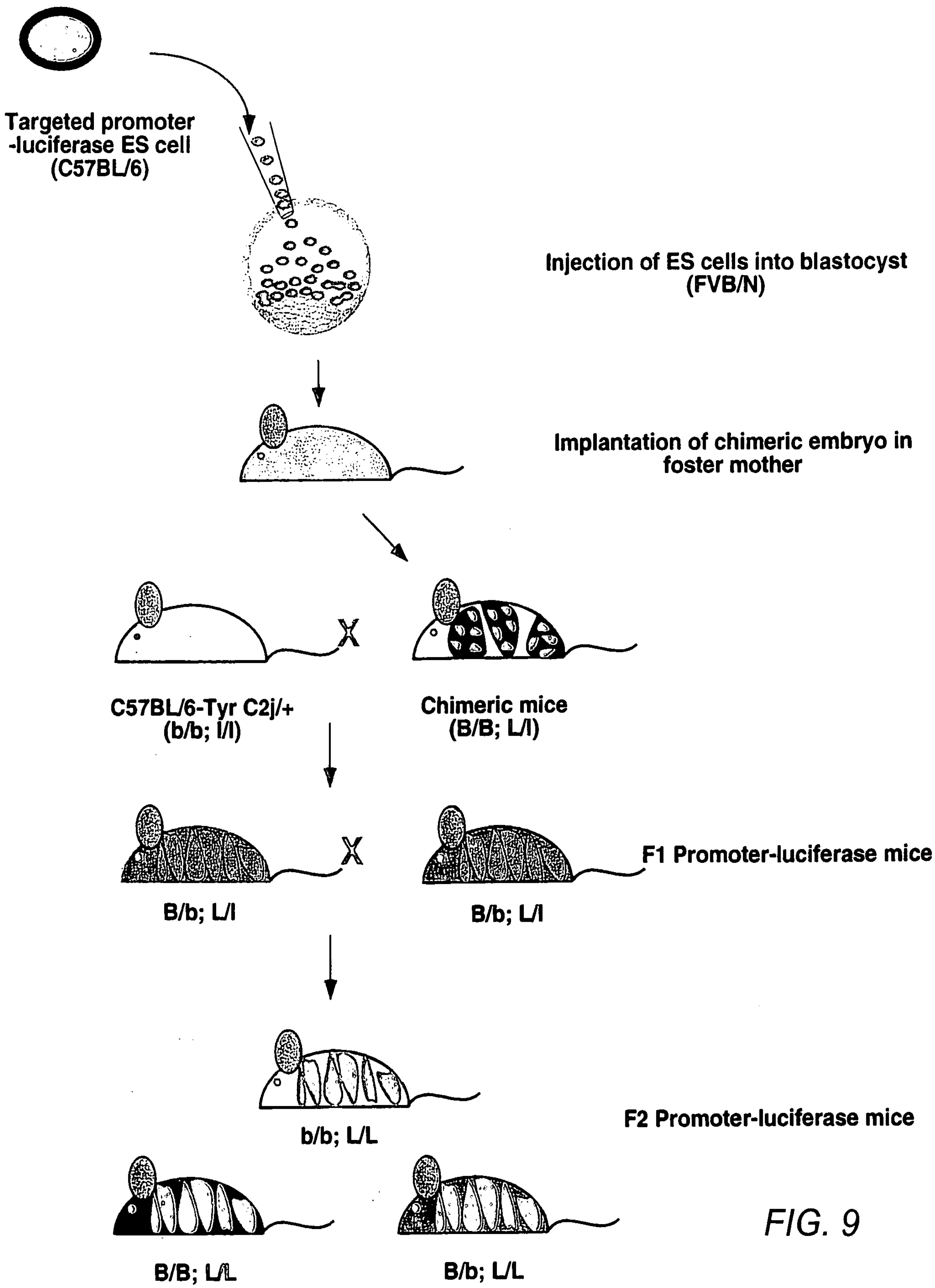

FIG. 9

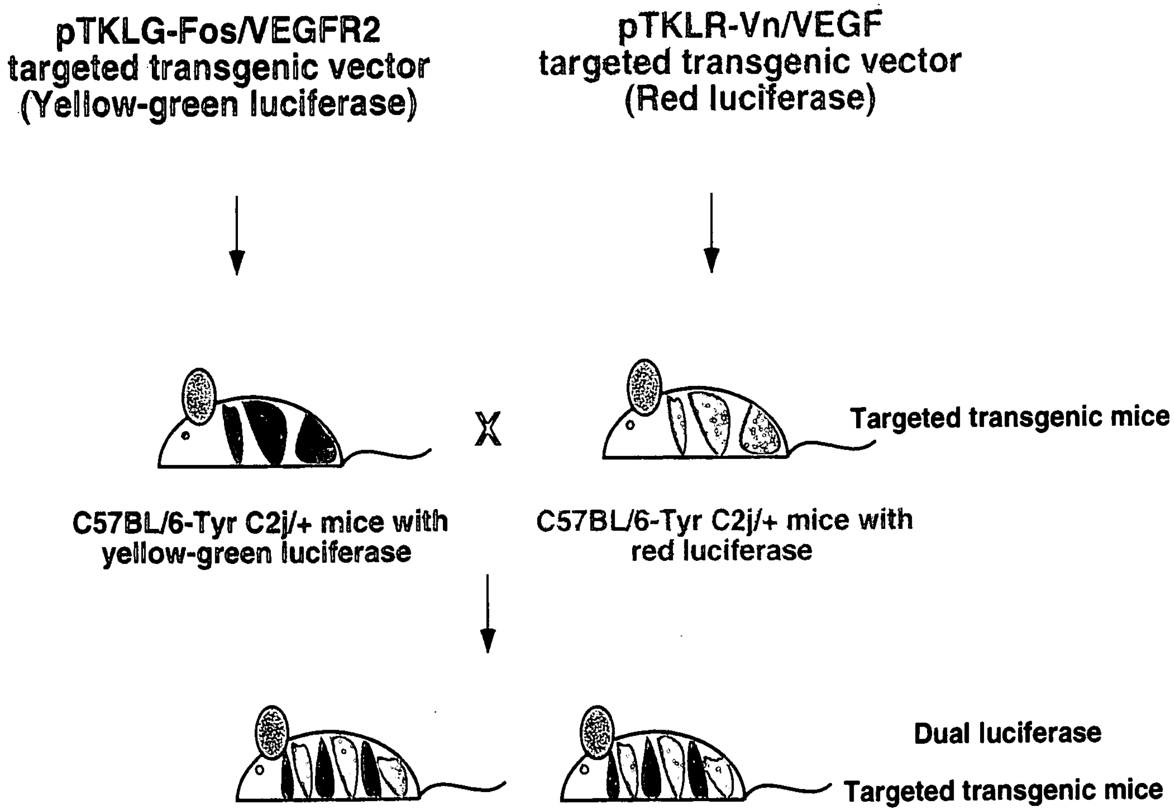
pTKLG-Fos/VEGFR2
targeted transgenic vector
(Yellow-green luciferase)
pTKLR-Vn/VEGF
targeted transgenic vector
(Red luciferase)
X
Targeted transgenic mice
C57BL/6-Tyr C2j/+ mice with
yellow-green luciferase
C57BL/6-Tyr C2j/+ mice with
red luciferase
Dual luciferase
Targeted transgenic mice

FIG. 10

```
        10         20         30         40         50         60         70         80         90        100
AAATGTGCTGTCTTTAGAAGCCACTGCCTCAGCTTCTGCAGCTCAGATACCAAAGGAAGTCTGGTACACAGCATGATAAAAGACAATGGGACGGGGTCAC
TTTACACGACAGAAATCTTCGGTGACGGAGTCGAAGACGTCGAGTCTATGGTTTCCTTCAGACCATGTGTCGTACTATTTTCTGTTACCCTGCCCCAGTG

       110        120        130        140        150        160        170        180        190        200
AGTGGCTCCCGTCCCTTTCAGGGGTATGGAGACGAGCTGTAGAGAGATGTCTCCAGGGAGTTTTCATTAATCAGCAATTTAGTCAGATCTGTGCATCCTA
TCACCGAGGGCAGGGAAAGTCCCCATACCTCTGCTCGACATCTCTCTACAGAGGTCCCTCAAAAGTAATTAGTCGTTAAATCAGTCTAGACACGTAGGAT

       210        220        230        240        250        260        270        280        290        300
TGCTTTACAAGAAATGTCAGTGGGCCTGAGATCATCAGATGGAGGTTCATCGGGTTTCAATGTCCCGTATCCTTTTGTAAGACCTTGAAGTTGGCAACGC
ACGAAATGTTCTTTACAGTCACCCGGACTCTAGTAGTCTACCTCCAAGTAGCCCAAAGTTACAGGGCATAGGAAAACATTCTGGAACTTCAACCGTTGCG

       310        320        330        340        350        360        370        380        390        400
AGGAAAACAGGAACTCCACCCTGGTGCCGTGAATTGCAGAGCTGTTGTGTTGGTTTGTGACCATCTGCCCATTCTTCCTGTTATGACAGAGCTTGTGAAC
TCCTTTTGTCCTTGAGGTGGGACCACGGCACTTAACGTCTCGACAACACAACCAAACACTGGTAGACGGGTAAGAAGGACAATACTGTCTCGAACACTTG

       410        420        430        440        450        460        470        480        490        500
TTTAACTGGGACTGGGGCAAAGTCAATCCCACCTTTATACAATGAATTGCTGAAGAGGCCTTTTAAAACTTGGAGTGTGCATTGTTTATGGAAGGGCTTT
AAATTGACCCTGACCCCGTTTCAGTTAGGGTGGAAATATGTTACTTAACGACTTCTCCGGAAAATTTTGAACCTCACACGTAACAAATACCTTCCCGAAA

       510
CCTATTGGATC
GGATAACCTAG
```

FIG. 11

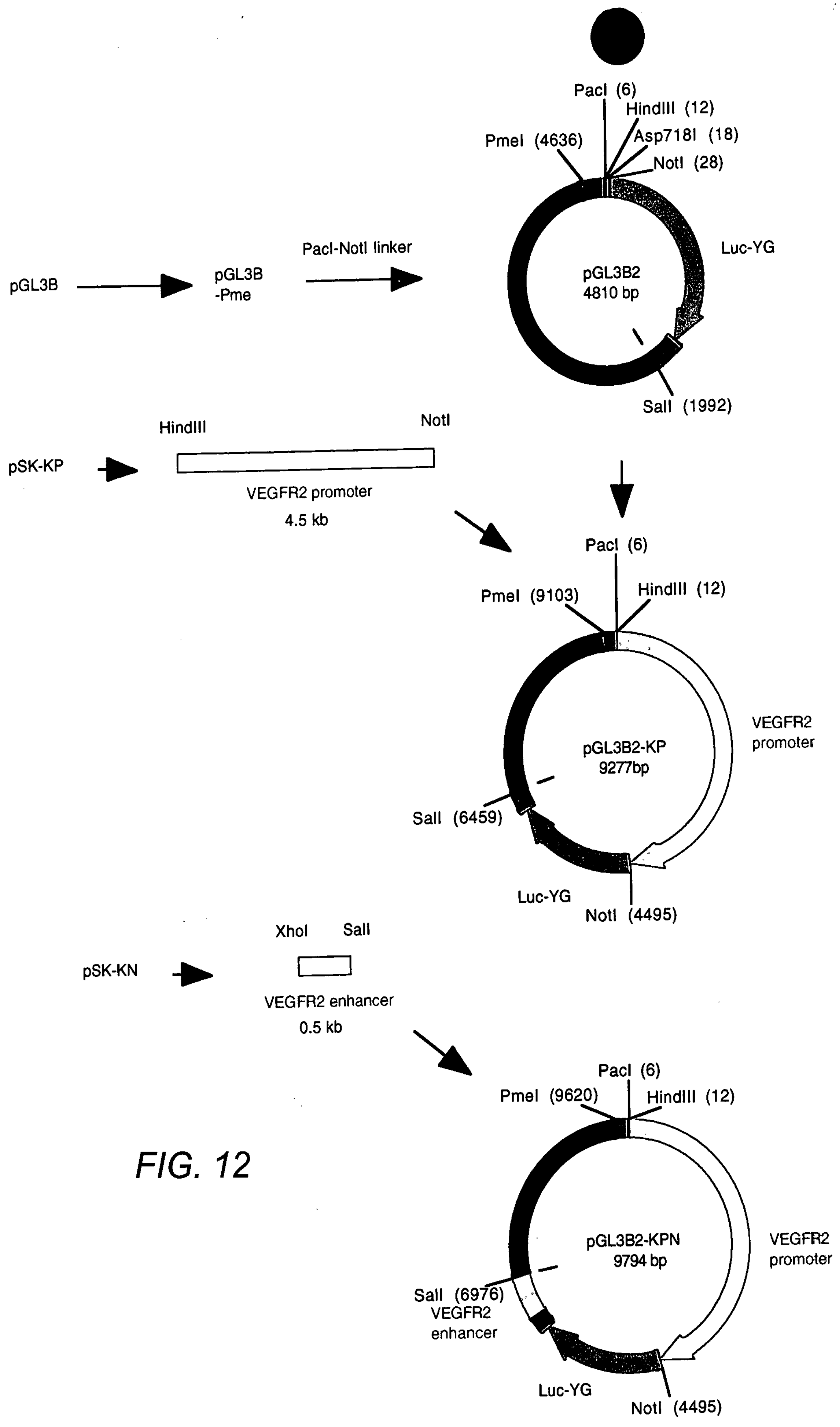
PacI (6)
HindIII (12)
Asp718I (18)
NotI (28)
PmeI (4636)
Luc-YG
PacI-NotI linker
pGL3B
pGL3B -Pme
pGL3B2 4810 bp
SalI (1992)
HindIII
NotI
pSK-KP
VEGFR2 promoter 4.5 kb
PacI (6)
PmeI (9103)
HindIII (12)
VEGFR2 promoter
pGL3B2-KP 9277bp
SalI (6459)
Luc-YG
NotI (4495)
XhoI
SalI
pSK-KN
VEGFR2 enhancer 0.5 kb
PacI (6)
PmeI (9620)
HindIII (12)
pGL3B2-KPN 9794 bp
VEGFR2 promoter
SalI (6976)
VEGFR2 enhancer
Luc-YG
NotI (4495)

FIG. 12

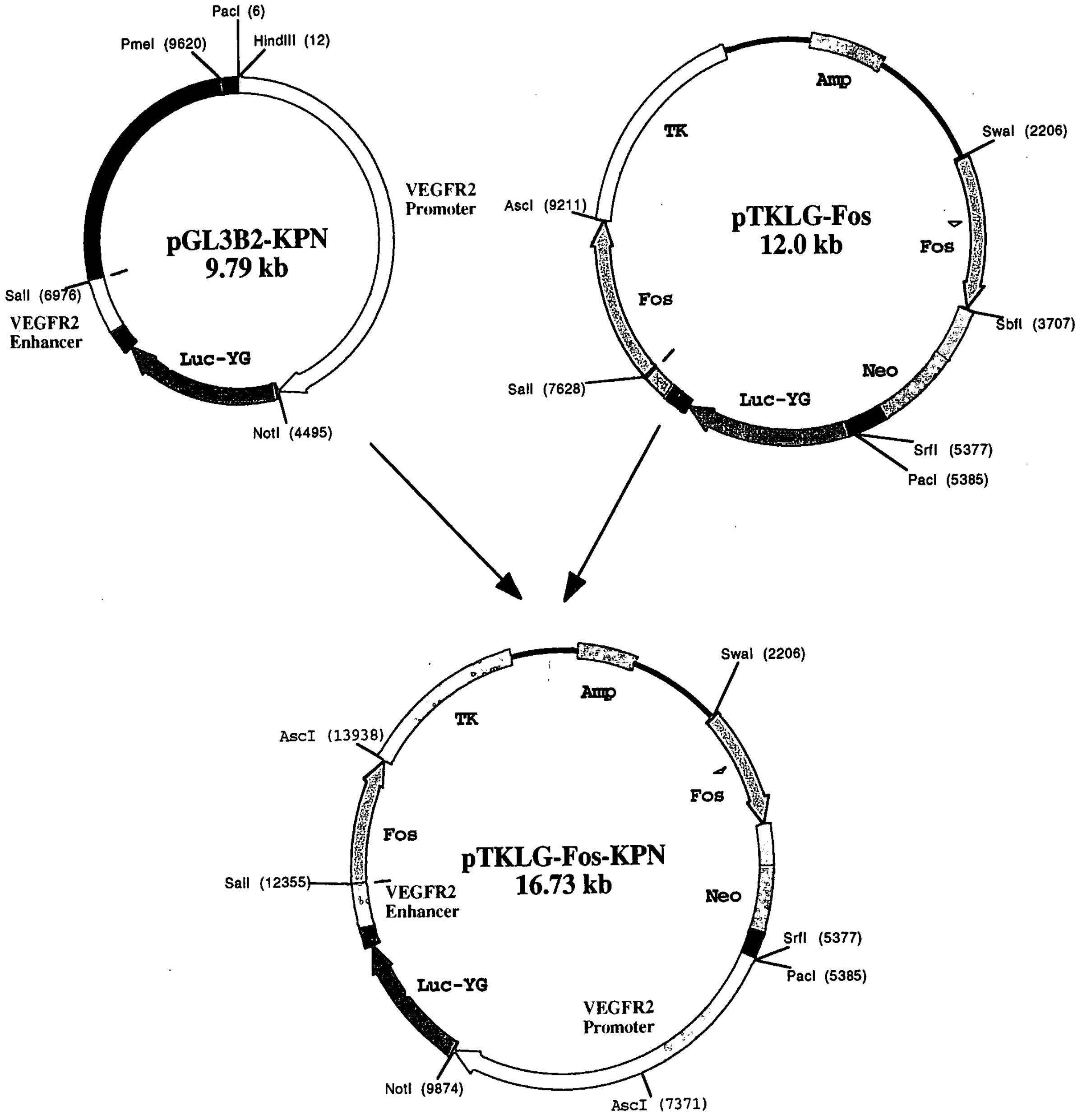
PacI (6)
PmeI (9620)
HindIII (12)
VEGFR2 Promoter
pGL3B2-KPN
9.79 kb
SalI (6976)
VEGFR2 Enhancer
Luc-YG
NotI (4495)
Amp
TK
SwaI (2206)
AscI (9211)
pTKLG-Fos
12.0 kb
Fos
Fos
SbfI (3707)
Neo
SalI (7628)
Luc-YG
SrfI (5377)
PacI (5385)
SwaI (2206)
Amp
TK
AscI (13938)
Fos
Fos
pTKLG-Fos-KPN
16.73 kb
SalI (12355)
VEGFR2 Enhancer
Neo
SrfI (5377)
PacI (5385)
Luc-YG
VEGFR2 Promoter
NotI (9874)
AscI (7371)

FIG. 13

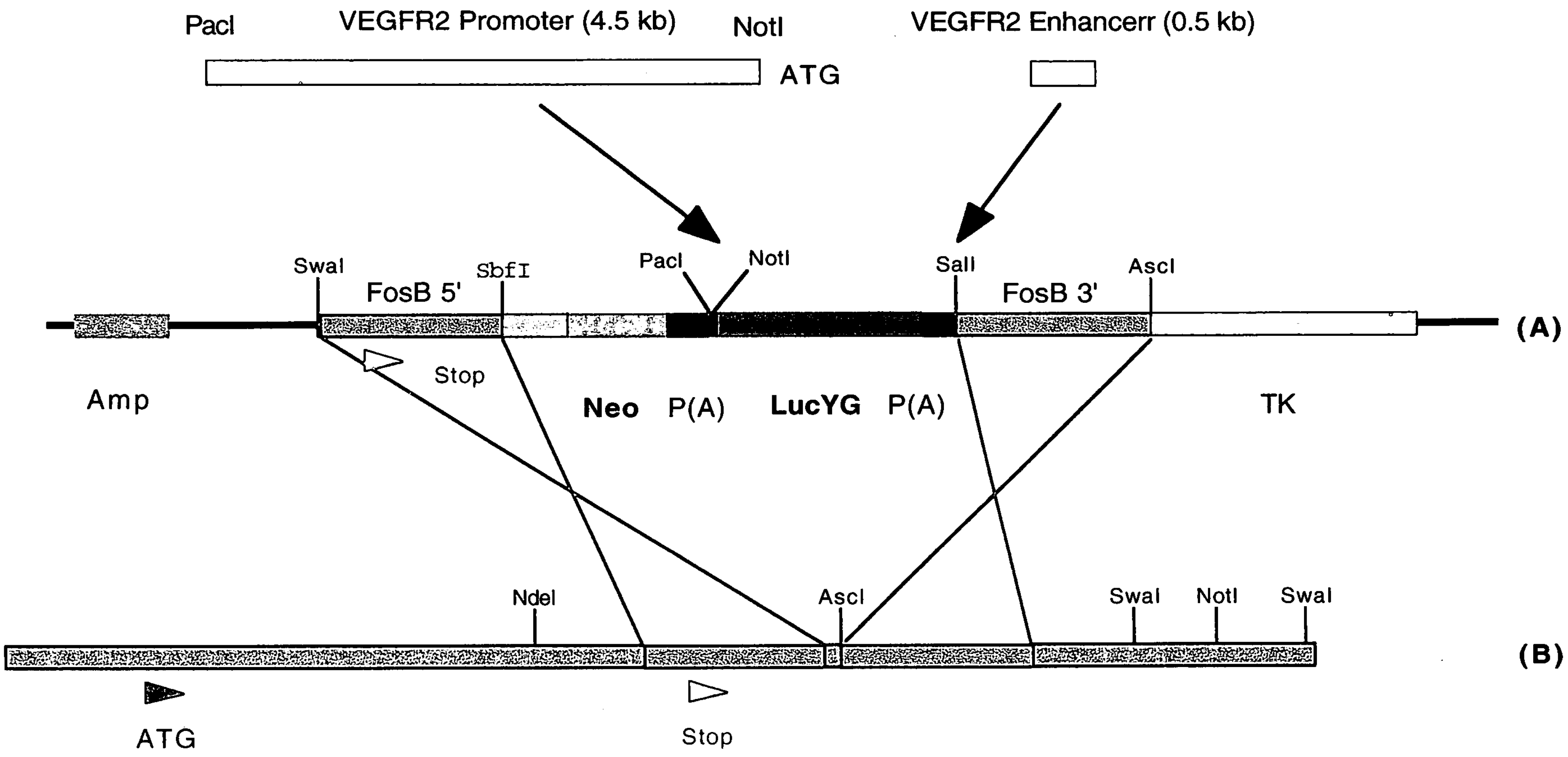
PacI
VEGFR2 Promoter (4.5 kb)
NotI
ATG
VEGFR2 Enhancerr (0.5 kb)
SwaI
SbfI
PacI
NotI
SalI
AscI
FosB 5'
FosB 3'
(A)
Amp
Stop
Neo
P(A)
LucYG
P(A)
TK
NdeI
AscI
SwaI
NotI
SwaI
(B)
ATG
Stop

FIG. 14

```
        10        20        30        40        50        60                  80        90       100
GGTACCAAAGCATAGAACTACAGATCCGCTCTCTGCCTGTACCACCCTCTGGCATTTAATCACACAATGCTTGGTTTTGTTCTTCAACTTTTCCTGTTAT
CCATGGTTTCGTATCTTGATGTCTAGGCGAGAGACGGACATGGTGGGAGACCGTAAATTAGTGTGTTACGAACCAAAACAAGAAGTTGAAAAGGACAATA

       110       120       130       140       150       160       170       180       190       200
GATGCAGTCCCTGGCTTGTGTAACTATGAGCTTCAAAAGCAAAGAACGCATCATCTATTTTTGTGTCTCTTCTTCCAAGGACTTAGTGTATCACTTACTG
CTACGTCAGGGACCGAACACATTGATACTCGAAGTTTTCGTTTCTTGCGTAGTAGATAAAAACACAGAGAAGAAGGTTCCTGAATCACATAGTGAATGAC

       210       220       230       240       250       260       270       280       290       300
GCTAAATGCTTGAGACAAAAACAGGGATTAATGAAGAAGAAAGAGAAAGAAAAGGAAGGGAAAGTGCCCACAATTACTGACAGGGTTTCAGTAAAGCAGT
CGATTTACGAACTCTGTTTTTGTCCCTAATTACTTCTTCTTTCTCTTTCTTTTCCTTCCCTTTCACGGGTGTTAATGACTGTCCCAAAGTCATTTCGTCA

       310       320       330       340       350       360       370       380       390       400
CTAGAGGGTCAGGTATTTTCCATAGCCATGCCCCAGAGTGGGTGTTGCCACTTTAGCTGCCCTGGTCTGGCTGAAGGCCAGGACTTGATTGTTGATGGCC
GATCTCCCAGTCCATAAAAGGTATCGGTACGGGGTCTCACCCACAACGGTGAAATCGACGGGACCAGACCGACTTCCGGTCCTGAACTAACAACTACCGG

       410       420       430       440       450       460       470       480       490       500
CTTCCTTTGCTGCTAGTCACTGTTAAGTACTGCAGATTTACAGAAAGCTTCATGGAGGTCTGTAAGAAGCCAGAGGTGATAACACCAAGATTTAGAGCCA
GAAGGAAACGACGATCAGTGACAATTCATGACGTCTAAATGTCTTTCGAAGTACCTCCAGACATTCTTCGGTCTCCACTATTGTGGTTCTAAATCTCGGT

       510       520       530       540       550       560       570       580       590       600
CTGACCAGCAGAATGCAGAATGTCCAGGCTATGATCCAGGTTGTAGATCCTGATCTGACTACTCAAGACTGGTTGAAGGCAAGGTTCACTTGGATTCACT
GACTGGTCGTCTTACGTCTTACAGGTCCGATACTAGGTCCAACATCTAGGACTAGACTGATGAGTTCTGACCAACTTCCGTTCCAAGTGAACCTAAGTGA

       610       620       630       640       650       660       670       680       690       700
CTATTTGCCAGCAGATGTTTTAAATCCATCATATATATATATATATCTCCATTACTTTAGGACAGTGGTTCTCAGCCTTCCTAATGCTGTAGCCCTTTAA
GATAAACGGTCGTCTACAAAATTTAGGTAGTATATATATATATATAGAGGTAATGAAATCCTGTCACCAAGAGTCGGAAGGATTACGACATCGGGAAATT

       710       720       730       740       750       760       770       780       790       800
TAGAGTTCCTCATATTGTGATTGTAAAAATTATTTTGTTGCTACTTCATGACTAATTTTGCTACTGTGAAAGGGTCATTTTACCCCAGGCTGTTGAGACC
ATCTCAAGGAGTATAACACTAACATTTTTAATAAAACAACGATGAAGTACTGATTAAAACGATGACACTTTCCCAGTAAAATGGGGTCCGACAACTCTGG

       810       820       830       840       850       860       870       880       890       900
CACATGTTGGGAACCACTACTTTAGAAGGCATTGGGGTTGGAGAAGAACATGAAGAATAGAGTAACAGTGGTCAGTTTTGGTTCATTATATCACAGAAAC
GTGTACAACCCTTGGTGATGAAATCTTCCGTAACCCCAACCTCTTCTTGTACTTCTTATCTCATTGTCACCAGTCAAAACCAAGTAATATAGTGTCTTTG

       910       920       930       940       950       960       970       980       990      1000
ATTCACTTTAAGGTTTCAGCATGTTTGTTGTGTATATGTGATTGTGTAAAGACTTCACCAGGTCTTTCTTTAATCACCATACCTAACATCTTCACCACTC
TAAGTGAAATTCCAAAGTCGTACAAACAACACATATACACTAACACATTTCTGAAGTGGTCCAGAAAGAAATTAGTGGTATGGATTGTAGAAGTGGTGAG

      1010      1020      1030      1040      1050      1060      1070      1080      1090      1100
CATATCCATCAGCTTCACCTTGTACTCTAGCATTTGGGCATTCATCCTGTACCAGGGCAGGCATCCATTCTTTTGCAACTCACATTGTTTCCTAGTTTTG
GTATAGGTAGTCGAAGTGGAACATGAGATCGTAAACCCGTAAGTAGGACATGGTCCCGTCCGTAGGTAAGAAAACGTTGAGTGTAACAAAGGATCAAAAC

      1110      1120      1130      1140      1150      1160      1170      1180      1190      1200
ATTATTACCAACAATGCTTCTAGACCATGAATTTTGGTCTTTGACTTTTGCTTGGTAAACATCATAAAACAATCCAGTGGTGGTGGTGGTGCCGCTGCTG
TAATAATGGTTGTTACGAAGATCTGGTACTTAAAACCAGAAACTGAAAACGAACCATTTGTAGTATTTTGTTAGGTCACCACCACCACCACGGCGACGAC

      1210      1220      1230      1240      1250      1260      1270      1280      1290      1300
CTGGTGGTGGTGGTAAAGCAGGAAGCCATAAAGTGCCTTTATTCAATCTGTATTTGATACAAATTGTTATTTCTTCCCATGTAAAAGATATGGCATCTGA
GACCACCACCACCATTTCGTCCTTCGGTATTTCACGGAAATAAGTTAGACATAAACTATGTTTAACAATAAAGAAGGGTACATTTTCTATACCGTAGACT

      1310      1320      1330      1340      1350      1360      1370      1380      1390      1400
AGTGTAGAGGTCTGAATTCAAACCTCACATCACCAGATAGTATATTACAGACTCAACAAATAATACACGGCTTTGCCTGACTTCAAAGCCCTGTTCTTGA
TCACATCTCCAGACTTAAGTTTGGAGTGTAGTGGTCTATCATATAATGTCTGAGTTGTTTATTATGTGCCGAAACGGACTGAAGTTTCGGGACAAGAACT

      1410      1420      1430      1440      1450      1460      1470      1480      1490      1500
CGTAAGTATATGAGTAACAATGGTAGCACCTTAGTTTTTATCAGTTCACTAAATATTTATATAAGACCTACTATGAAGGGAGATAGAAGGGTATGAGGTG
GCATTCATATACTCATTGTTACCATCGTGGAATCAAAAATAGTCAAGTGATTTATAAATATATTCTGGATGATACTTCCCTCTATCTTCCCATACTCCAC

      1510      1520      1530      1540      1550      1560      1570      1580      1590      1600
GGGTCATGGGAATAGGAAAACGGTGGAAGGGAGAAGGAGAATTAACAAAAGCTAATTATGTTTGAAAATGCCACAATGAAACCTAATTTACAAAAGAACC
CCCAGTACCCTTATCCTTTTGCCACCTTCCCTCTTCCTCTTAATTGTTTTCGATTAATACAAACTTTTACGGTGTTACTTTGGATTAAATGTTTTCTTGG

      1610      1620      1630      1640      1650      1660      1670      1680      1690      1700
ACTATATGACCTTCACAGTGTGTGCTAAGTCTTGGAGATTTAGTGGTGAAGAAGTCAGGTGTGTTTCCAATCTCATGGAGGATGTAATCAGTTAGAGAGC
TGATATACTGGAAGTGTCACACACGATTCAGAACCTCTAAATCACCACTTCTTCAGTCCACACAAAGGTTAGAGTACCTCCTACATTAGTCAATCTCTCG

      1710      1720      1730      1740      1750      1760      1770      1780      1790      1800
ACAGGAGCACATAAAAAGATAGGCAAAAATGTATGATTAGTACCATGTAAGATATGAAGGGGAACACAGGAAACTAGTGGGGAGACCTAATTTAGTTTGA
TGTCCTCGTGTATTTTTCTATCCGTTTTTACATACTAATCATGGTACATTCTATACTTCCCCTTGTGTCCTTTGATCACCCCTCTGGATTAAATCAAACT

      1810      1820      1830      1840      1850      1860      1870      1880      1890      1900
GTGGTCTTCAAAGACCCTTTAGAAGCTGAGAACTAAAGACAGCAAGCAAGGTGAGGGCAGCATCTCCACCTTTCCAGTGGAATGAGCAACTTAGGGTATA
CACCAGAAGTTTCTGGGAAATCTTCGACTCTTGATTTCTGTCGTTCGTTCCACTCCCGTCGTAGAGGTGGAAAGGTCACCTTACTCGTTGAATCCCATAT

      1910      1920      1930      1940      1950      1960      1970      1980      1990      2000
CAGCTGATTCCCACATTGTCAACAAGGCTCTTCAGAGACTAGAGATGCACTAATGATGACCATACCCAGCTTTTAAGGAAGGTTTCTGAGCATGTCCAAG
GTCGACTAAGGGTGTAACAGTTGTTCCGAGAAGTCTCTGATCTCTACGTGATTACTACTGGTATGGGTCGAAAATTCCTTCCAAAGACTCGTACAGGTTC

      2010      2020      2030      2040      2050      2060      2070      2080      2090      2100
CACCCTACACTAGGCATTGGAAATCAACATGTCCAGAGATGGAAGTGACAGTCAGTAAGCCAACCCTTTTCAAAACTTCCAAAGCTATTACTCGTCAACT
GTGGGATGTGATCCGTAACCTTTAGTTGTACAGGTCTCTACCTTCACTGTCAGTCATTCGGTTGGGAAAAGTTTTGAAGGTTTCGATAATGAGCAGTTGA

      2110      2120      2130      2140      2150      2160      2170      2180      2190      2200
CTCCAGACATATGGGCCCCGAGTGTGTTGGGAAGCTCTCATTATTGTTCTTTGATTGGTTCTCTACATTCCGAGATCCAAGGAGCAGTTATCTCAGGTAG
GAGGTCTGTATACCCGGGGCTCACACAACCCTTCGAGAGTAATAACAAGAAACTAACCAAGAGATGTAAGGCTCTAGGTTCCTCGTCAATAGAGTCCATC
```

FIG. 15-1

```
      2210      2220      2230      2240      2250      2260      2270      2280      2290      2300
AGGATCGTGGAATGTCTGCCCATGATTAACTTCAATTTATACCTGTAAGTTATACCACATCCTAAACACGCTGATGTCCCAGAGAACATTTTGACCAGCT
TCCTAGCACCTTACAGACGGGTACTAATTGAAGTTAAATATGGACATTCAATATGGTGTAGGATTTGTGCGACTACAGGGTCTCTTGTAAAACTGGTCGA

      2310      2320      2330      2340      2350      2360      2370      2380      2390      2400
GCTAACAAAACCCAGGAGCATTTAGAAAAAAACTGAGTCACCCACCGTTCTGGATAATGATGGAGAGAAACAAATGGGATTATTCTTACAGAGTATGAAA
CGATTGTTTTGGGTCCTCGTAAATCTTTTTTTGACTCAGTGGGTGGCAAGACCTATTACTACCTCTCTTTGTTTACCCTAATAAGAATGTCTCATACTTT

      2410      2420      2430      2440      2450      2460      2470      2480      2490      2500
GTTACATAATTTTCCTGGATAATGGAGAATTAATTAAACATCAGCATCTTTTCTGGACTGCAGAGGGAAGACAGAGGTGAAGCCAATCTTTCCGGGAAAT
CAATGTATTAAAAGGACCTATTACCTCTTAATTAATTTGTAGTCGTAGAAAAGACCTGACGTCTCCCTTCTGTCTCCACTTCGGTTAGAAAGGCCCTTTA

      2510      2520      2530      2540      2550      2560      2570      2580      2590      2600
GGAGGAGGAAAGAATTTGACTACTATTTGGGGGTTAACAATACATCTTACTAGCATGGCAAAGGAAACTGGGCTGCTTTTCAGAGTAAGCCACCCCAGTA
CCTCCTCCTTTCTTAAACTGATGATAAACCCCCAATTGTTATGTAGAATGATCGTACCGTTTCCTTTGACCCGACGAAAAGTCTCATTCGGTGGGGTCAT

      2610      2620      2630      2640      2650      2660      2670      2680      2690      2700
GATGCTGCAAGGCTGTGCTTTCATCCCAGGAGAAAGTCAACAGGGCCAGGCATGCCAGAACATGCCCATAATGTAACCACTTAGGCTGAGGCAGAAAGAT
CTACGACGTTCCGACACGAAAGTAGGGTCCTCTTTCAGTTGTCCCGGTCCGTACGGTCTTGTACGGGTATTACATTGGTGAATCCGACTCCGTCTTTCTA

      2710      2720      2730      2740      2750      2760      2770      2780      2790      2800
CAAAAATCCCAGGCCAGCTTAGTTTGTGTAACAAGACCTTTGCTCAAACAAAGATTTACAAAACAAACAAGCAAACAAACAAATATAAAAAAGGAGAAGA
GTTTTTAGGGTCCGGTCGAATCAAACACATTGTTCTGGAAACGAGTTTGTTTCTAAATGTTTTGTTTGTTCGTTTGTTTGTTTATATTTTTTCCTCTTCT

      2810      2820      2830      2840      2850      2860      2870      2880      2890      2900
AAATAACTGCCAGGGGAGGCTGTGAGCAATGAAGACTTGATGAGTGACCATCTCGCACAGTGGACGCTTGTGTCTAGAAGGTAAGGGCTTGGCAATGTTT
TTTATTGACGGTCCCCTCCGACACTCGTTACTTCTGAACTACTCACTGGTAGAGCGTGTCACCTGCGAACACAGATCTTCCATTCCCGAACCGTTACAAA

      2910      2920      2930      2940      2950      2960      2970      2980      2990      3000
CCCAGGTTTTCCATTCCTGGTTTATATGGCTTGAGGCCAGTGGACTTCACAATGTCTCAGCTTCCAGGTCTTTATACAGAGCATATTAGCCACATGTGGT
GGGTCCAAAAGGTAAGGACCAAATATACCGAACTCCGGTCACCTGAAGTGTTACAGAGTCGAAGGTCCAGAAATATGTCTCGTATAATCGGTGTACACCA

      3010      3020      3030      3040      3050      3060      3070      3080      3090      3100
AGCTTGTGCCTGTAATGCTGGCACTTGAGAGACCAAGACAGGAGGATTGCCACAAGTCTCCATCCAGCCTAGGTGCTGTGTCACTCTGTCTCACCCCTGA
TCGAACACGGACATTACGACCGTGAACTCTCTGGTTCTGTCCTCCTAACGGTGTTCAGAGGTAGGTCGGATCCACGACACAGTGAGACAGAGTGGGGACT

      3110      3120      3130      3140      3150      3160      3170      3180      3190      3200
CCCAGTCCCACCCAACATCAAACAGGCTATCACTGTGACACTGGTACTGAGTCAGAATCACCCAGATTAAAGATTCTGGGAGATCAGTCCTGGGGATGCG
GGGTCAGGGTGGGTTGTAGTTTGTCCGATAGTGACACTGTGACCATGACTCAGTCTTAGTGGGTCTAATTTCTAAGACCCTCTAGTCAGGACCCCTACGC

      3210      3220      3230      3240      3250      3260      3270      3280      3290      3300
GGAAGTGAGACCAGTTATTTAATAATTCTTATACTCATGAGATGATGGATCCAGATGAGAAATTGTAAAAATTTTAGGTTTTATAATTGAAGAAATAGGT
CCTTCACTCTGGTCAATAAATTATTAAGAATATGAGTACTCTACTACCTAGGTCTACTCTTTAACATTTTTAAAATCCAAAATATTAACTTCTTTATCCA

      3310      3320      3330      3340      3350      3360      3370      3380      3390      3400
GGTTTCTTCAGGTTACATCTCTCCACTGTTGGTCATTTCAGCTAAGGTCACTCCCCATTGATTCCTGTGAGGCTCTCACATCCCAGGTCTCTGGGACTTT
CCAAAGAAGTCCAATGTAGAGAGGTGACAACCAGTAAAGTCGATTCCAGTGAGGGGTAACTAAGGACACTCCGAGAGTGTAGGGTCCAGAGACCCTGAAA

      3410      3420      3430      3440      3450      3460      3470      3480      3490      3500
CTAGAGGTTCCCGCTGCTTCCCAGCCCTGAAAATGCGTATTTCTATTCATTCTCCTGGCATTCTGGGCTTCTCTCCTGTCCCCCGCCCCACCCAACACCT
GATCTCCAAGGGCGACGAAGGGTCGGGACTTTTACGCATAAAGATAAGTAAGAGGACCGTAAGACCCGAAGAGAGGACAGGGGGCGGGGTGGGTTGTGGA

      3510      3520      3530      3540      3550      3560      3570      3580      3590      3600
GATCCTGCCCCCTTTCTCTCCCCCTTCTCTCTCTAAACCAGGTCCCTCCCTCCCTCTGCTTCCCATGATTATTTTGTTCCCTCCTCTAAATGAGTCTGAA
CTAGGACGGGGGAAAGAGAGGGGGAAGAGAGAGATTTGGTCCAGGGAGGGAGGGAGACGAAGGGTACTAATAAAACAAGGGAGGAGATTTACTCAGACTT

      3610      3620      3630      3640      3650      3660      3670      3680      3690      3700
GCATCCTCACTTGGACNTTCCTTCTTGTTAAACTTCATATGGTCTGTGAGTTGTATCATGGGTATTCTGTACTTTTTTGGCTAATGTTTCACTTATCAGT
CGTAGGAGTGAACCTGNAAGGAAGAACAATTTGAAGTATACCAGACACTCAACATAGTACCCATAAGACATGAAAAAACCGATTACAAAGTGAATAGTCA

      3710      3720      3730      3740      3750      3760      3770      3780      3790      3800
GAGTGCAAACCAGGCATATCCTTTTGAGTTTGGGTTACCTCACTCAGGATGATATTTTCTAGTTCTATCCATTCGCCTGCAAAATTCATGATGTCCTAAT
CTCACGTTTGGTCCGTATAGGAAAACTCAAACCCAATGGAGTGAGTCCTACTATAAAAGATCAAGATAGGTAAGCGGACGTTTTAAGTACTACAGGATTA

      3810      3820      3830      3840      3850      3860      3870      3880      3890      3900
TTTTAGTAGCTGAATAGTATTCCATTGTGTAAATGAACCATATTTTCTGCATCTGTTCTTCAGCTGAGGGAAATCTGGGTTGTTTCCAGCTTCTAGGTAT
AAAATCATCGACTTATCATAAGGTAACACATTTACTTGGTATAAAAGACGTAGACAAGAAGTCGACTCCCTTTAGACCCAACAAAGGTCGAAGATCCATA

      3910      3920      3930      3940      3950      3960      3970      3980      3990      4000
TATAAATAAGGTTGCTATGAACATAGTGGAACACATATCCTTGAGGTATGGTAGAGCATCTTTTGGGTATATATCCAGGAGTGGATAGTTGGGTTTTCAG
ATATTTATTCCAACGATACTTGTATCACCTTGTGTATAGGAACTCCATACCATCTCGTAGAAAACCCATATATAGGTCCTCACCTATCAACCCAAAAGTC

      4010      4020      4030      4040      4050      4060      4070      4080      4090      4100
GTAGAACTATTTCCAATTTTCTAAGGAACCACCAGATTGATTTTTAGATAGACAGGGCCCCTAGTGGAGAGATGGGGCCAAACACCTACCTTCAAAAATT
CATCTTGATAAAGGTTAAAAGATTCCTTGGTGGTCTAACTAAAAATCTATCTGTCCCGGGGATCACCTCTCTACCCCGGTTTGTGGATGGAAGTTTTTAA

      4110      4120      4130      4140      4150      4160      4170      4180      4190      4200
TGGTCCAGAATTGTTCCTCTCTAAAAGAAATGCAGGGACAAAAATGAAACAGAGACTGACCAACCCAACTTAGGATCCATCCTATGGGCAAGCACCAAAC
ACCAGGTCTTAACAAGGAGAGATTTTCTTTACGTCCCTGTTTTTACTTTGTCTCTGACTGGTTGGGTTGAATCCTAGGTAGGATACCCGTTCGTGGTTTG

      4210      4220      4230      4240      4250      4260      4270      4280      4290      4300
CCAGACTCTATTATTGATGCCATGTTGTGCTTGCAGACAGGAGCTTAGCATGGCTGTCCTCTGAGACACTCTATCAGCAGCTGACTGGGACAGATGCAGA
GGTCTGAGATAATAACTACGGTACAACACGAACGTCTGTCCTCGAATCGTACCGACAGGAGACTCTGTGAGATAGTCGTCGACTGACCCTGTCTACGTCT

      4310      4320      4330      4340      4350      4360      4370      4380      4390      4400
TGCCAACCCTTGAACTGAGGTCCAGGACCCCTATGGAAGAATTAGGGGAAGGTTTGAAGGAGCTGAAGGGGATGGCAACCCCATAGGAAAAACAAGTGTC
ACGGTTGGGAACTTGACTCCAGGTCCTGGGGATACCTTCTTAATCCCCTTCCAAACTTCCTCGACTTCCCCTACCGTTGGGGTATCCTTTTTGTTCACAG
```

FIG. 15-2

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      4410      4420      [illegible]430      4440      4450      4460      44[illegible]      4480      4490      4500
AACTAACCCTCAGAGCTCCCAGAGACTAAGCCACCAACTAAAGAGCATACATGGGCTGGTTTGTGGTCCCTGGCAGAGGACTGCCTTGTCTGGCCTCAGT
TTGATTGGGAGTCTCGAGGGTCTCTGATTCGGTGGTTGATTTCTCGTATGTACCCGACCAAACACCAGGGACCGTCTCCTGACGGAACAGACCGGAGTCA

      4510      4520      4530      4540      4550      4560      4570      4580      4590      4600
AGGAGAGGATGTGCCTAATCCTCTAGAGACTTGATGCCCCAGGGAAGGGGACAAGGAGGGGACAAGGTGGGGATTGGTGTGGGGTAGTGGGGGTTGGGGG
TCCTCTCCTACACGGATTAGGAGATCTCTGAACTACGGGGTCCCTTCCCCTGTTCCTCCCCTGTTCCACCCCTAACCACACCCCATCACCCCCAACCCCC

      4610      4620      4630      4640      4650      4660      4670      4680      4690      4700
TGGGGGTGGGGATGTGAATGGGTGAGTGAGGGAGGGAATGAGTGAGTGGGTGGTACAGCATCCTCTCAGAGGCAAAGGGGAAGGGGAGTGGATAACAAAC
ACCCCCACCCCTACACTTACCCACTCACTCCCTCCCTTACTCACTCACCCACCATGTCGTAGGAGAGTCTCCGTTTCCCCTTCCCCTCACCTATTGTTTG

      4710      4720      4730      4740      4750      4760      4770      4780      4790      4800
TCTGGGAGCAGGGACGGGGAAGGAGGGCAACATTTGTAATTAAATAAATAAAATAATTTAATAAAAAAAATGAAGAAACAGGATAACTTGGGAATGGTTA
AGACCCTCGTCCCTGCCCCTTCCTCCCGTTGTAAACATTAATTTATTTATTTTATTAAATTATTTTTTTTACTTCTTTGTCCTATTGAACCCTTACCAAT

      4810      4820      4830      4840      4850      4860      4870      4880      4890      4900
CAGCAGGGCTGGGATTAGAACCCAAAAAGTTTATTCTGAGACTCTTTTCCAATACCAAGCTTAAAGTTTTCTTCAGAATTCTATAGAATGCCTTTTTGGC
GTCGTCCCGACCCTAATCTTGGGTTTTTCAAATAAGACTCTGAGAAAAGGTTATGGTTCGAATTTCAAAAGAAGTCTTAAGATATCTTACGGAAAAACCG

      4910      4920      4930      4940      4950      4960      4970      4980      4990      5000
AGAAGTTCTTTGGACTTTAATAAAGAACATATTGAAGAGATGAAAAGAAGCTTACTAAGATCTAATGAAAATCAAGATGCTAGGCACAGTGCCAGATACT
TCTTCAAGAAACCTGAAATTATTTCTTGTATAACTTCTCTACTTTTCTTCGAATGATTCTAGATTACTTTTAGTTCTACGATCCGTGTCACGGTCTATGA

      5010      5020      5030      5040      5050      5060      5070      5080      5090      5100
TTAACATAGTAATATGACTCTTTAGAGTTTTGAGACAGGGCCTCATATAGTTTATGATGAATTCACTGTTTTGTCAAAGATGACCTTGAACTCTTAATCC
AATTGTATCATTATACTGAGAAATCTCAAAACTCTGTCCCGGAGTATATCAAATACTACTTAAGTGACAAAACAGTTTCTACTGGAACTTGAGAATTAGG

      5110      5120      5130      5140      5150      5160      5170      5180      5190      5200
ATTCCCAAAGTGTTGTTGTCATATGTTTGCACCACTCCTGGCTTCATAGTGTTTTTAAAACACCCATGGAGAGTCGGGTGTGAAGATCCACACGTCTAAC
TAAGGGTTTCACAACAACAGTATACAAACGTGGTGAGGACCGAAGTATCACAAAAATTTTGTGGGTACCTCTCAGCCCACACTTCTAGGTGTGCAGATTG

      5210      5220      5230      5240      5250      5260      5270      5280      5290      5300
CTCAGCATCTGGTGAATCAAGGCAGGAGGGCGGGTGGTTGCAGGCTGGCTATAATATCTAAGTTTCAGTTAGTAAGGGCTGCATAATGAAACACTGTCTT
GAGTCGTAGACCACTTAGTTCCGTCCTCCCGCCCACCAACGTCCGACCGATATTATAGATTCAAAGTCAATCATTCCCGACGTATTACTTTGTGACAGAA

      5310      5320      5330      5340      5350      5360      5370      5380      5390      5400
AAACACAAAACCAAAACCCATGAAGGAGATACTATTGCCATTTAAAAGTCTCTGGAATGGAAATAGCTATCATAATCTTACCTCTGAGCCAGTGTCTGCC
TTTGTGTTTTGGTTTTGGGTACTTCCTCTATGATAACGGTAAATTTTCAGAGACCTTACCTTTATCGATAGTATTAGAATGGAGACTCGGTCACAGACGG

      5410      5420      5430      5440      5450      5460      5470      5480      5490      5500
CTCAGGTGTGCCTGAGGACTGAACAGGGCTATGCACTCCTCAGGTTGGAAACATTACTAGTCCTCAGTGTCTGCTCTTGACCTGTTAACAGCTGAGTCAG
GAGTCCACACGGACTCCTGACTTGTCCCGATACGTGAGGAGTCCAACCTTTGTAATGATCAGGAGTCACAGACGAGAACTGGACAATTGTCGACTCAGTC

      5510      5520      5530      5540      5550      5560      5570      5580      5590      5600
GGTCTGCCCTCAGCTGTGCCTGAGGACAGAGCTGAGCTATCTACCCCTGCAGATTGGAAGCATTACAGGCACTCAAGATCAGCCCTGAAGTGATAAAACC
CCAGACGGGAGTCGACACGGACTCCTGTCTCGACTCGATAGATGGGGACGTCTAACCTTCGTAATGTCCGTGAGTTCTAGTCGGGACTTCACTATTTTGG

      5610      5620      5630      5640      5650      5660      5670      5680      5690      5700
TAAGGCAGAAATCCACCAAGACTAGCAGTGCCTCCGTGTCTCTTCCTGTGGCTGGTGGGAAAGAGAGGGGCAGTCCTTCCTTGATGCAAGGTCGTGTGTC
ATTCCGTCTTTAGGTGGTTCTGATCGTCACGGAGGCACAGAGAAGGACACCGACCACCCTTTCTCTCCCCGTCAGGAAGGAACTACGTTCCAGCACACAG

      5710      5720      5730      5740      5750      5760      5770      5780      5790      5800
TAGTGGCACGCTTCCTTCATTCCCAGTGAGAGCAAGTGATCACCTGGGTAAGGAAGGTTCAGGTGCCTGAGCTCGCTGGAGAATTCATCACTCATCCATC
ATCACCGTGCGAAGGAAGTAAGGGTCACTCTCGTTCACTAGTGGACCCATTCCTTCCAAGTCCACGGACTCGAGCGACCTCTTAAGTAGTGAGTAGGTAG

      5810      5820      5830      5840      5850      5860      5870      5880      5890      5900
ACTCTGCTCCTGTAGACATAATCACTTCTGTTGGGTCTTTATAGAGATGATTTATAACTTTGTTGTTTATAGTTTTTATGAATGTGTGTATTCATTTAGG
TGAGACGAGGACATCTGTATTAGTGAAGACAACCCAGAAATATCTCTACTAAATATTGAAACAACAAATATCAAAAATACTTACACACATAAGTAAATCC

      5910      5920      5930      5940      5950      5960      5970      5980      5990      6000
TCACATGGGAGGTACACATTTTCAGGTGTCTGTCTTTCCATCACACGGGCTTTGAATTAAACTCAGTCTTGGTTTTACCGGCTGAGCCATCTCACCTGCC
AGTGTACCCTCCATGTGTAAAAGTCCACAGACAGAAAGGTAGTGTGCCCGAAACTTAATTTGAGTCAGAACCAAAATGGCCGACTCGGTAGAGTGGACGG

      6010      6020      6030      6040      6050      6060      6070      6080      6090      6100
TGATTATTTAAAAATCTCCGGAGTAATCCAGGAGTGTGGTTTATGATTGTAGTATCAACACTCGGGAGGCTGAGGGAGCATCGTTATCATGAGCTCCAGG
ACTAATAAATTTTTAGAGGCCTCATTAGGTCCTCACACCAAATACTAACATCATAGTTGTGAGCCCTCCGACTCCCTCGTAGCAATAGTACTCGAGGTCC

      6110      6120      6130      6140      6150      6160      6170      6180      6190      6200
CTAGTTCCAGGCTTGCCTAAGCTGTAGAGCAAGTCACTCTCTTAAAAAGTGCCTCTCCCATATTTTTGTATATAATTTGCATCTGAAATTCTGTTTGCCA
GATCAAGGTCCGAACGGATTCGACATCTCGTTCAGTGAGAGAATTTTTCACGGAGAGGGTATAAAAACATATATTAAACGTAGACTTTAAGACAAACGGT

      6210      6220      6230      6240      6250      6260      6270      6280      6290      6300
ATAACTATGAAATTATTCACATTACTAAAATCTTCCTGTGCCAAGTTCTCCAACGAATTAGATCACACTCAGATGAAATGCTAATAAAAATTAAAGCTGT
TATTGATACTTTAATAAGTGTAATGATTTTAGAAGGACACGGTTCAAGAGGTTGCTTAATCTAGTGTGAGTCTACTTTACGATTATTTTTAATTTCGACA

      6310      6320      6330      6340      6350      6360      6370      6380      6390      6400
AGCCAGTAGCATGCGTATATTTGGGCTCAGGGCCAACAGGCAGGCGATCTGGGTGTAAGAAAATAGGCTAATGGCTGTGGAATCTGGTCTCTAGTGGCTC
TCGGTCATCGTACGCATATAAACCCGAGTCCCGGTTGTCCGTCCGCTAGACCCACATTCTTTTATCCGATTACCGACACCTTAGACCAGAGATCACCGAG

      6410      6420      6430      6440      6450      6460      6470      6480      6490      6500
CGCTGAGAGCTGACCTCAACCACGCTCCCTCAAATTGATTGCCTTCCAGGTTATGATTTCTCATCACAGGAAACTTTGTTGCCCAATTCAAACCCTGTGA
GCGACTCTCGACTGGAGTTGGTGCGAGGGAGTTTAACTAACGGAAGGTCCAATACTAAAGAGTAGTGTCCTTTGAAACAACGGGTTAAGTTTGGGACACT

      6510      6520      6530      6540      6550      6560      6570      6580      6590      6600
GTGAAAACAAAAACAGGAGAGCAAGTGCTGCTCCCCGTGCCCCAAAGCCCCTTCTGTCAGGGATCCCAAATGCACCCCAGAGAACAGCTTAGCCTGCAAG
CACTTTTGTTTTTGTCCTCTCGTTCACGACGAGGGGCACGGGGTTTCGGGGAAGACAGTCCCTAGGGTTTACGTGGGGTCTCTTGTCGAATCGGACGTTC
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FIG. 15-3

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        6610      6620      6630      6640      6650      6660      66[illegible]      6680      6690      6700
GGCTGGTCCTCATCGCATACCATACATAGGTGGAGGGCTTGTTATTCAATTCCTGGCCTATGAGAGGATACCCCTATTGTTCCTGAAAATGCTGACCAGG
CCGACCAGGAGTAGCGTATGGTATGTATCCACCTCCCGAACAATAAGTTAAGGACCGGATACTCTCCTATGGGGATAACAAGGACTTTTACGACTGGTCC

        6710      6720      6730      6740      6750      6760      6770      6780      6790      6800
ACCTTACTTGTAACAAAGATCCCTCTGCCCCACAATCCAGTTAAGGCAGGAGCAGGAGCCGGAGCAGGAGCAGAAGATAAGCCTTGGATGAAGGGCAAGA
TGGAATGAACATTGTTTCTAGGGAGACGGGGTGTTAGGTCAATTCCGTCCTCGTCCTCGGCCTCGTCCTCGTCTTCTATTCGGAACCTACTTCCCGTTCT

        6810      6820      6830      6840      6850      6860      6870      6880      6890      6900
TGGATAGGGCTCGCTCTGCCCCAAGCCCTGCTGATACCAAGTGCCTTTAAGATACAGCCTTTCCCATCCTAATCTGCAAAGGAAACAGGAAAAAGGAACT
ACCTATCCCGAGCGAGACGGGGTTCGGGACGACTATGGTTCACGGAAATTCTATGTCGGAAAGGGTAGGATTAGACGTTTCCTTTGTCCTTTTTCCTTGA

        6910      6920      6930      6940      6950      6960      6970      6980      6990      7000
TAACCCTCCCTGTGCTCAGACAGAAATGAGACTGTTACCGCCTGCTTCTGTGGTGTTTCTCCTTGCCGCCAACTTGTAAACAAGAGCGAGTGGACCATGC
ATTGGGAGGGACACGAGTCTGTCTTTACTCTGACAATGGCGGACGAAGACACCACAAAGAGGAACGGCGGTTGAACATTTGTTCTCGCTCACCTGGTACG

        7010      7020      7030      7040      7050      7060      7070      7080      7090
GAGCGGGAAGTCGCAAAGTTGTGAGTTGTTGAAAGCTTCCCAGGGACTCATGCTCATCTGTGGACGCTGGATGGGGAGATCTGGGGAAGTATG
CTCGCCCTTCAGCGTTTCAACACTCAACAACTTTCGAAGGGTCCCTGAGTACGAGTAGACACCTGCGACCTACCCCTCTAGACCCCTTCATAC
```

FIG. 15-4

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        10        20        30        40        50        60        70        80        90       100
CTCGAGGTCCAGTATGGCTTCTCAACCTTCTTGGCAAGAAGGCTGCAGGGACGACCAGGAAGTTTGAAACAGTCTTAGAAGAAAATGCTGGCTTAGAGAC
GAGCTCCAGGTCATACCGAAGAGTTGGAAGAACCGTTCTTCCGACGTCCCTGCTGGTCCTTCAAACTTTGTCAGAATCTTCTTTTACGACCGAATCTCTG

       110       120       130       140       150       160       170       180       190       200
AGGTGGCAATGGGGGATGGGGAGCAGTATTCTGGTTTGCATAGAGGCAGAGTCCTTCCAAGTGCTGGGAAACAAGGCAGGAGGGCAGGGATAGAGCAAAT
TCCACCGTTACCCCCTACCCCTCGTCATAAGACCAAACGTATCTCCGTCTCAGGAAGGTTCACGACCCTTTGTTCCGTCCTCCCGTCCCTATCTCGTTTA

       210       220       230       240       250       260       270       280       290       300
GATGGCTCTGTATGTGTCCCTGTTCAGTTTGCATTTAATCTGAGCAAAATTTGGCTTTTGACATCTGCAACTCAAAAGAAGGTAATTAGGCAAATGACTG
CTACCGAGACATACACAGGGACAAGTCAAACGTAAATTAGACTCGTTTTAAACCGAAAACTGTAGACGTTGAGTTTTCTTCCATTAATCCGTTTACTGAC

       310       320       330       340       350       360       370       380       390       400
ACACATAGATATCTTAATAGTCAAGGAATTTTTTTTTTTTTTTTTGAAGAGTTAGCAGTCAGGGGATGGTAGAAACTGCAAAACCAATCCGTATTCTTTC
TGTGTATCTATAGAATTATCAGTTCCTTAAAAAAAAAAAAAAAAACTTCTCAATCGTCAGTCCCCTACCATCTTTGACGTTTTGGTTAGGCATAAGAAAG

       410       420       430       440       450       460       470       480       490       500
TTGAGATTTTTAGACAGTTGATGCTACTAGCCACAAAAAGAGTTTTAAGTGGGAGGAGAGTAAGATGCAGGCACCAAGGTGACAGGCTCCAGGTCTGTAG
AACTCTAAAAATCTGTCAACTACGATGATCGGTGTTTTTCTCAAAATTCACCCTCCTCTCATTCTACGTCCGTGGTTCCACTGTCCGAGGTCCAGACATC

       510       520       530       540       550       560       570       580       590       600
CATTAGCTTACAGATGAGATTCTTTACAGAGAGCCAGGCAGCTGCATTGGCTAAAGCAGATCTGGGAGGGGGCCAGGAGATCAGCTGGCGGCACTCCCAG
GTAATCGAATGTCTACTCTAAGAAATGTCTCTCGGTCCGTCGACGTAACCGATTTCGTCTAGACCCTCCCCCGGTCCTCTAGTCGACCGCCGTGAGGGTC

       610       620       630       640       650       660       670       680       690       700
CCTCCAGGAAAGGCAACCCTTATTTCTGGAATTTTAAACTGATAACCCAATTCCCACCAGCCTGGCCAGGCTCTTCCTTAGCTCACATCACAAACACAGA
GGAGGTCCTTTCCGTTGGGAATAAAGACCTTAAAATTTGACTATTGGGTTAAGGGTGGTCGGACCGGTCCGAGAAGGAATCGAGTGTAGTGTTTGTGTCT

       710       720       730       740       750       760       770       780       790       800
AGGATTGTTTTAGATGGAGTCATGCTTGATTCTTTCTATACCTACTTCCAAGACCAATTTTATAAAAGTTTATTTACCGCCCGTGTGTGTGTGTGTGTGT
TCCTAACAAAATCTACCTCAGTACGAACTAAGAAAGATATGGATGAAGGTTCTGGTTAAAATATTTTCAAATAAATGGCGGGCACACACACACACACACA

       810       820       830       840       850       860       870       880       890       900
GTGTGTGTGTGTGTGTGTGTGTGTGTGTGCATGGTATATATGGATGTCAGAGTTTGGTTCTCTCCTTCTGCAGTGTGGCTCTTAGAGATTGAACTCAGAT
CACACACACACACACACACACACACACACGTACCATATATACCTACAGTCTCAAACCAAGAGAGGAAGACGTCACACCGAGAATCTCTAACTTGAGTCTA

       910       920       930       940       950       960       970       980       990      1000
CATGAGCAAGCACCTTGCTGCCTGCTATGTCCCTCCAGCAGTCTGACCATGTTCCTTCCCCCAAGATTGTGGAAGCTGGACTGAAGATCACAATCTGCCA
GTACTCGTTCGTGGAACGACGGACGATACAGGGAGGTCGTCAGACTGGTACAAGGAAGGGGGTTCTAACACCTTCGACCTGACTTCTAGTGTTAGACGGT

      1010      1020      1030      1040      1050      1060      1070      1080      1090      1100
GATGGGCAGAATCTTTACTCTTTGGCACATTTGTTGCTGATGGGGAGTGAATACCCATGGGGACATGGCTGTCATGGTGTGGAAGTGATAGAAATGAAAA
CTACCCGTCTTAGAAATGAGAAACCGTGTAAACAACGACTACCCCTCACTTATGGGTACCCCTGTACCGACAGTACCACACCTTCACTATCTTTACTTTT

      1110      1120      1130      1140      1150      1160      1170      1180      1190      1200
CATGTATGGATCTGTCACAGGAGCTGGTGAGGCTGATGGGTGTGTGGGTGGCCACTGTTTGCTCTCTGCTTGTCACAGCCTCTTGTTCAGGGCTTGATCA
GTACATACCTAGACAGTGTCCTCGACCACTCCGACTACCCACACACCCACCGGTGACAAACGAGAGACGAACAGTGTCGGAGAACAAGTCCCGAACTAGT

      1210      1220      1230      1240      1250      1260      1270      1280      1290      1300
GGCAGGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGGTCACACCCATCTCAGCAGATCTGTCAGCTTTCCCGCTTTTGTTAGAGGGTG
CCGTCCACACACACACACACACACACACACACACACACACACACCAGTGTGGGTAGAGTCGTCTAGACAGTCGAAAGGGCGAAAACAATCTCCCAC

      1310      1320      1330      1340      1350      1360      1370      1380      1390      1400
ATATCATGCTTCCTGGGGGGAGCTCTGGAAGACAATGAGCAGCCACTTTCCTCTAGATACAATAGGCGGAGTCAGGAAGGTAGTATTGACATTGCTGGGG
TATAGTACGAAGGACCCCCCTCGAGACCTTCTGTTACTCGTCGGTGAAAGGAGATCTATGTTATCCGCCTCAGTCCTTCCATCATAACTGTAACGACCCC

      1410      1420      1430      1440      1450      1460      1470      1480      1490      1500
CCTAGGAGCTACTCACTGCTCGGTGGCCGTCAGATGGTGAACCGGCGTAACCTTGGCACACAGGCCTGGGCTGTACAAGGCGTCTGGCTGCAGGGCCAAA
GGATCCTCGATGAGTGACGAGCCACCGGCAGTCTACCACTTGGCCGCATTGGAACCGTGTGTCCGGACCCGACATGTTCCGCAGACCGACGTCCCGGTTT

      1510      1520      1530      1540      1550      1560      1570      1580      1590      1600
GAGGACTCCACCCTAGGGACAGGAGTACTTCAGACATCTGGGAATCTGGGATGGGTTTTAAAATTCAGATCCCAATATAAAAAAACAACTCCCAAACAAA
CTCCTGAGGTGGGATCCCTGTCCTCATGAAGTCTGTAGACCCTTAGACCCTACCCAAAATTTTAAGTCTAGGGTTATATTTTTTTGTTGAGGGTTTGTTT

      1610      1620      1630      1640      1650
CAGCAGCAATTAAAAAAAAAAAAAAAAACCAGCCTCCCAAGTAAAACAATAATGGTACC
GTCGTCGTTAATTTTTTTTTTTTTTTTTGGTCGGAGGGTTCATTTTGTTATTACCATGG
```
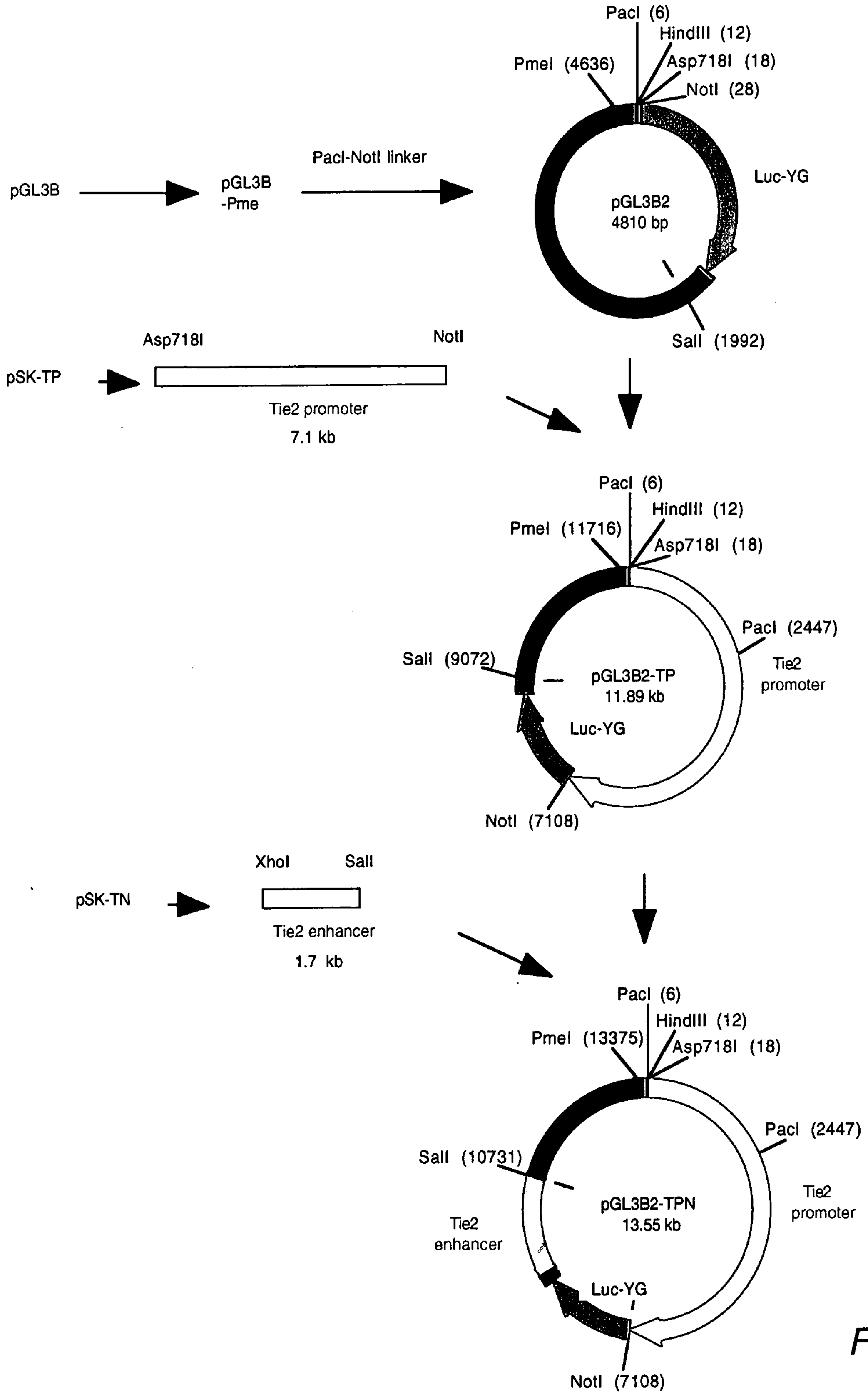

FIG. 16


pGL3B
pGL3B
-Pme
PacI-NotI linker
PacI (6)
HindIII (12)
Asp718I (18)
NotI (28)
PmeI (4636)
Luc-YG
pGL3B2
4810 bp
SalI (1992)
pSK-TP
Asp718I
NotI
Tie2 promoter
7.1 kb
PacI (6)
HindIII (12)
Asp718I (18)
PmeI (11716)
PacI (2447)
Tie2
promoter
SalI (9072)
pGL3B2-TP
11.89 kb
Luc-YG
NotI (7108)
pSK-TN
XhoI
SalI
Tie2 enhancer
1.7 kb
PacI (6)
HindIII (12)
Asp718I (18)
PmeI (13375)
PacI (2447)
SalI (10731)
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13.55 kb
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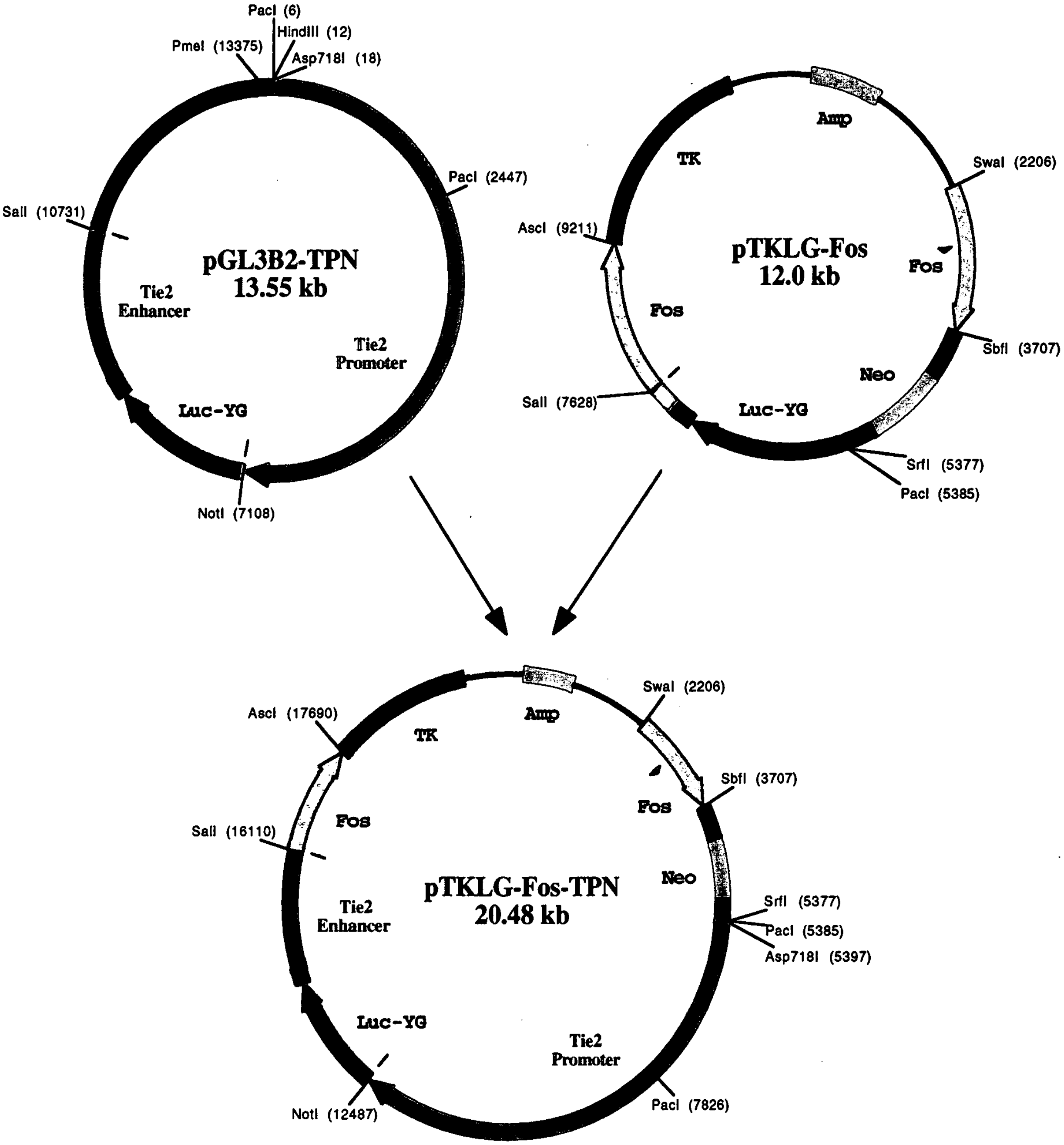
promoter
Tie2
enhancer
Luc-YG
NotI (7108)

FIG. 17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HindIII (12)
Asp718I (18)
PmeI (13375)
PacI (2447)
SalI (10731)
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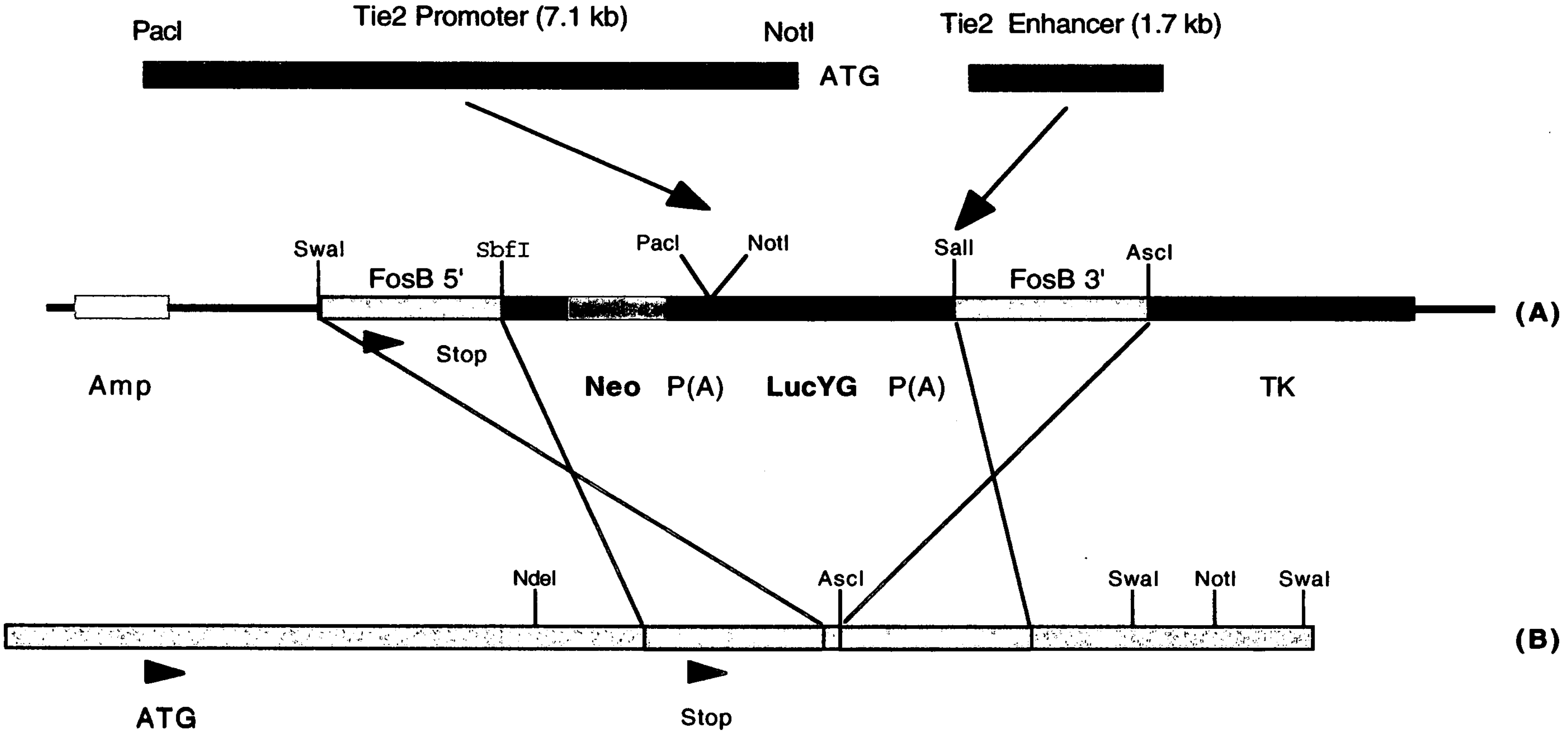
13.55 kb
Tie2
Enhancer
Tie2
Promoter
Luc-YG
NotI (7108)
Amp
TK
SwaI (2206)
AscI (9211)
pTKLG-Fos
12.0 kb
Fos
Fos
SbfI (3707)
Neo
SalI (7628)
Luc-YG
SrfI (5377)
PacI (5385)
SwaI (2206)
AscI (17690)
TK
Amp
SbfI (3707)
Fos
SalI (16110)
Fos
Neo
pTKLG-Fos-TPN
20.48 kb
Tie2
Enhancer
SrfI (5377)
PacI (5385)
Asp718I (5397)
Luc-YG
Tie2
Promoter
NotI (12487)
PacI (7826)

FIG. 18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NotI
ATG
Tie2 Enhancer (1.7 kb)
SwaI
SbfI
PacI
NotI
SalI
AscI
FosB 5'
FosB 3'
(A)
Stop
Amp
Neo
P(A)
LucYG
P(A)
TK
NdeI
AscI
SwaI
NotI
SwaI
(B)
ATG
Stop

FIG. 19